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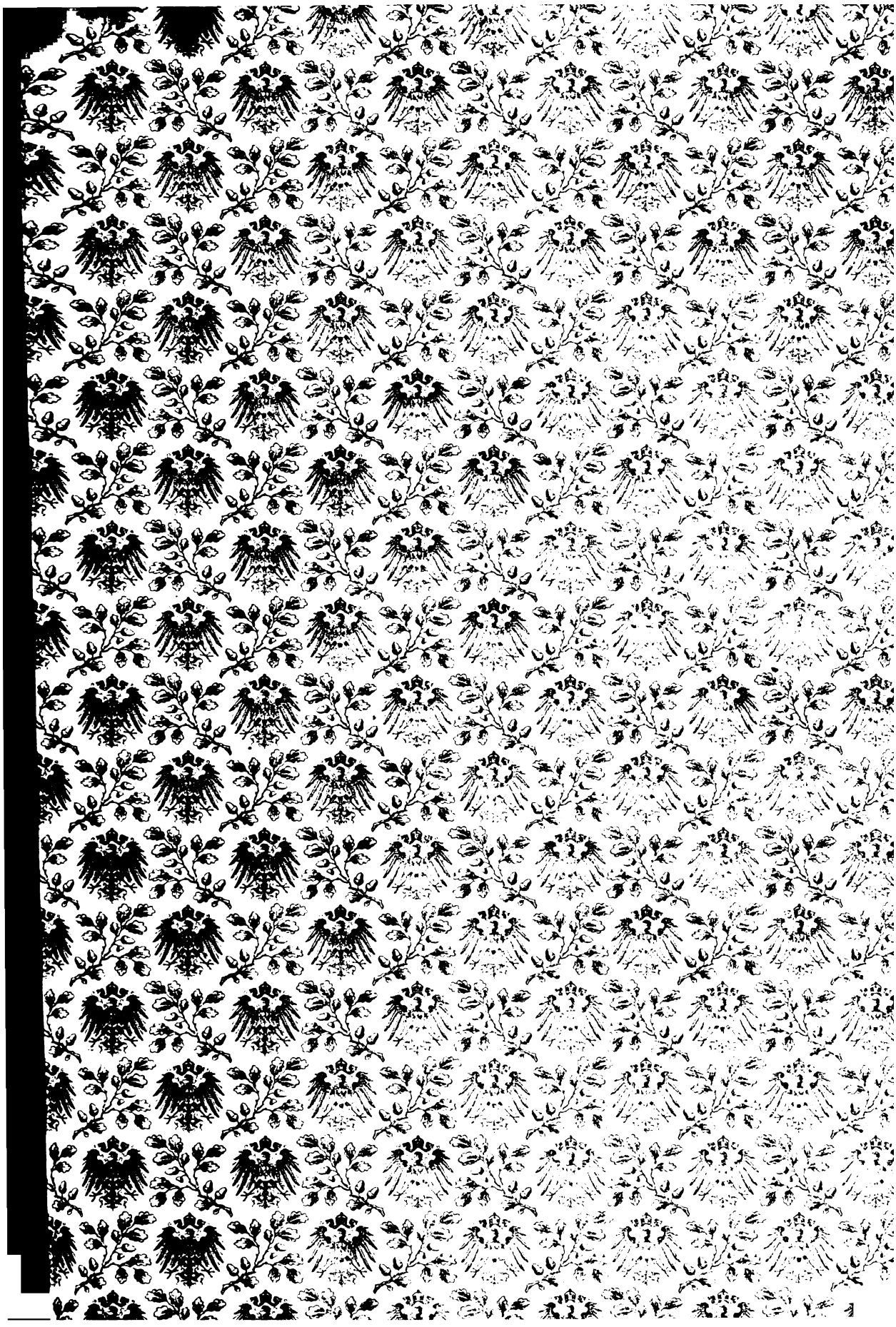

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THE

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THE TREATMENT OF REMITTENT AND INTERMITTENT FEVERS.

BY SEALE HARRIS, M.D.,
Union Springs, Ala.

In this symposium by Southern authors, on "The Treatment of Remittent and Intermittent Fevers," I presume that we are expected to discuss the methods of treating malaria that are actually employed in our every-day practice. I shall therefore give simply my personal experience in treating those conditions, and will consider the etiology, pathology, and symptomatology of the different forms of malaria only in so far as is necessary to outline their rational treatment.

In discussing the prophylactic treatment of malaria, I shall confine myself to individual prophylaxis, and will not mention the various methods of destroying the malaria-bearing (Anopheles) mosquitoes. If the individual can avoid being bitten by infected mosquitoes, he of course escapes the disease; and in localities infected with malaria it is advisable for every one to sleep under mosquito bars or in carefully screened houses from early spring until winter has well begun. The patient suffering from malaria in any form should by all means be placed under a mosquito bar as soon as the diagnosis of malaria is suspected, and kept there until he is free from every symptom, in order to avoid infecting the mosquitoes already in the home. The physician should consider it just as much a duty to instruct a family,

when one of its members is infected with malaria, regarding the methods to be employed to prevent others from becoming infected, as he does when a member of a family has tuberculosis or typhoid fever. I am quite sure that the doctrine of the mosquito origin of malaria, which is becoming accepted by the laity as well as by practically all progressive physicians, has been the means of lessening the prevalence of malarial diseases all over the civilized world.

The value of quinine as a prophylactic in malaria is as great as when it is used for its specific effect after the disease has been contracted. From 3 to 5 grains (0.18 to 0.3 gramme) taken night and mornings will almost certainly give protection from malaria.

The Italians use as a prophylactic for malaria the fluid extract of lemon; and there is a prevalent idea among the laity in this section of the South that the juice of a lemon in a goblet of water, taken before breakfast, will prevent malaria when one is in a locality where he is exposed to the infection. If there is any virtue at all in this method it is probably due to the tonic, laxative, and cholagogic effect of the lemon juice. My observation has been that the well nourished individual who is in perfect physical condition is but slightly susceptible to malaria, which seems to seek for its victims principally those who are weakened or prostrated from other causes; hence it is advisable for every one in a malarial locality to employ a liberal diet, and to use other means of keeping his vitality and strength up to the highest normal point. Since the person who has had malaria is peculiarly susceptible to recurrences, it is advisable to give him prophylactic doses of quinine, with iron, arsenic, and other tonics, to build him up as rapidly as possible. In some cases it is necessary for a change of climate before the patient's health is completely restored.

I am quite sure that all clinicians who have had much experience in treating intermittent and remittent fevers will agree that quinine is our safest and most reliable antimalarial remedy, but I am convinced that it is one of the most abused drugs ever in use; and were it not in the great majority of cases a harmless agent, untold damage would result from the indiscriminate and haphazard use of quinine by the laity, and even by the medical profession, in the South. There are many persons, however, who do not tolerate quinine well, and there are certain conditions, as in typhoid fever and tuberculosis, where quinine deranges the stomach, thereby interfering with nutrition, and also increases or intensifies the nervous manifestations of those diseases; so that, unless the malarial organisms have been seen in the blood, I do not think we are justified in following the plan employed by many physicians in fevers of uncertain origin—*i.e.*, giving heroic doses of quinine for days, or even weeks, to exclude or assert the diagnosis of malaria. If the administration of quinine in antimalarial doses for forty-eight hours does not materially affect the fever in the great majority of cases, it is due to other causes than malaria; though there are occasional cases, one of which I will report later in this article, where quinine alone, even if administered for weeks continuously, will not destroy the plasmodium.

The microscope is almost indispensable for the rational treatment of many cases of malarial fevers—certainly to those who are accustomed to frequently rely upon the microscopic examination of the blood for demonstration of the malarial parasites before administering quinine even in small doses. In infected localities, however, the diagnosis of the tertian and quartan (intermittent) forms of malaria can be made practically with certainty at the bedside, from the symptoms alone, and the treatment begun at once; but in the atypical forms of those types, and in estivo-autumnal infection (remittent fever), the diagnosis is often a matter of conjecture without examination of the blood. In the severe forms of either intermittent or remittent fevers, even if the diagnosis is not absolutely certain, the quinine should be administered at once without waiting for microscopical test, because a delay in those cases may prove fatal, and we cannot afford to subject our patients to the risk of such delay, even for the sake of scientific exactness.

I am aware of the fact that some of the best authorities on malaria argue that the best time to get the specific effect of quinine in the tertian, quartan, and other intermittent forms of malaria is at the close of the paroxysm, when the vitality of the protozoa is said to be least, and just before the paroxysm, when sporulation

takes place. I have tried to follow this practice, but in some way I would be mistaken as to the time when those phases in the life cycle of the hematozoa take place, and there would be a recurrence; so I adopted the plan of giving the quinine in doses of from 3 to 5 grains (0.18 to 0.3 gramme) every three or four hours, as soon as I make the diagnosis of malaria; and whether the fever is low or high, give the quinine until the fever subsides, continuing it for a few hours after the expected paroxysm—and my results have been much more satisfactory. If I am called in during the cold stage (chill), or while the fever is at its height, and the nervous symptoms—*i.e.*, headache, backache, etc.—are severe, I sometimes administer a sedative hypodermically, morphine ⅛ to ¼ grain (0.008 to 0.015), with atrophine sulphate 1/150 grain (0.0004), but give the quinine at the same time. It is to be remembered that when quinine is given by the mouth it requires several hours to get its full effects, and it does not therefore add to the discomfort of the patient, as some claim, to give the quinine during the stage of pyrexia. If there is constipation I give a purgative, preferably calomel, 3 to 8 grains (0.18 to 0.5), combined with bicarbonate of sodium, podophyllin, and extract of hyoscyamus. Some physicians in this section always give an initial calomel purge before beginning the quinine, but I have not found it necessary except in cases where there is constipation, coated tongue, etc., though I believe that it is always advisable to keep the bowels and kidneys performing their eliminative functions, as the intestinal toxemia, which is coincidental with the other manifestations of the malarial explosion, unquestionably adds to the severity of the symptoms, and for that reason I usually combine with the quinine, salol 3 to 5 grains (0.18 to 0.3). I have also used with excellent success saloquinine, a new salt of quinine, which is chemically defined as the salicylic-acid ester of quinine. I do not think that this latter preparation has any advantages over the combination of salol and quinine, except that it is nearly tasteless. The dose of saloquinine is from 15 to 20 grains (1.0 to 1.2) every four hours, until the antimalarial effect is obtained.

Because of the severe headache, backache, and general discomfort which accompany nearly all malarial fevers I frequently give a sedative, codeine sulphate ¼ to ½ grain (0.016 to 0.03), with phenacetine, or ammonol, 2½ to 4 grains (0.15 to 0.25). I desire it distinctly understood that I do not give the latter drugs for their antipyretic effect, only as analgesics.

During the stage of hyperpyrexia I have the patient sponged with cold or tepid water, and sometimes placed in a cool or even cold bath, because it makes him more comfortable. While I am not quite a believer in the theory that fever in malaria is a conservative process, an effort on the part of nature to oxidize the toxines of the disease, I am convinced that the fever, *per se*, in malarial diseases is never the cause of serious destructive changes, as is usually taught. As I view it, the fever is simply one of the resultant manifestations of the malarial toxemia, just as are the other symptoms, and while it is a good index, as a rule, to the degree of toxemia, it is really the latter that does the damage. I therefore do not think that we are ever jusified in administering cardiac depressants with the view of "reducing fever;" and while I am a great believer in the therapeutic effect of cold water in malarial and other fevers, I do not regard its antipyretic effect as being the one most desired.

The following is a favorite formula, and one with which I have cured many cases of malaria, both the intermittent and remittent forms:

℞ Quininæ sulphatis, or hydrochloratis, grs. xl vel ʒj (2.5-4.0);
Salolis, grs. xl vel ʒj (2.5-4.0);
Codeine sulph., grs. iij (0.18);
Phenacetine, grs. xxx vel xl (2.0-2.5).

M. Ft. in caps. No. xii. S.: One capsule every three or four hours.

To insure solution of the capsule and quinine in the stomach, I sometimes follow each capsule with 10 minims of dilute hydrochloric acid. In cases where I desire a quicker effect, or where large capsules cannot be swallowed, I employ the Johns Hopkins Hospital method of giving the quinine in solution, though many people object very much to the taste of quinine, and physicians in general practice sometimes have to consider the desires of their patients by giving medicines in as palata-

ble a form as possible. The following formula, having the quinine in solution, is not very unpalatable, and contains the aromatic stimulant and sedative as employed by our surgeons in the Spanish-American war, and which cured many cases of the Cuban fevers where the quinine alone failed.

℞ Quininæ sulphatis, grs. 1 vel lxxx (3.12-5.0);
Acidi hydrochlor. dil., f℥jss vel ijss (5.62-9.37);
Tr. zingiberis, f℥ijss vel iv (9.37-15.00);
Tr. opii camph., f℥ij vel iv (7.50-15.0);
Syr. limonis, f℥ij (59.20);
Aquæ, q. s. ad f℥viij (236.0).

M. S.: Tablespoonful every four hours. Take through a straw.

With children I sometimes suspend the quinine in some of the aromatic syrups, as yerba santa, in a chocolate syrup, which disguises the taste of quinine to a great extent. If the syrups are objectionable because of a derangement of the stomach, I prescribe the bisulphate in solution, or saloquinine, which is nearly tasteless.

In the remittent (estivo-autumnal) forms of malarial fever there is usually constipation, and unless the symptoms are grave I begin the treatment with small doses of calomel, ¼ to 1 grain (0.016 to 0.065) every hour until bowels have acted thoroughly. In some cases I follow this with a saline. I then begin the quinine in from 3 to 5 grains (0.18 to 0.32) every three or four hours, continuing it without regard to the height of the fever until the temperature is normal, when the intervals between doses are increased to six hours, after which the quinine is continued in tonic or prophylactic doses until there is no probability of a recurrence of the infection.

In the comatose, congestive, or other malignant types of malaria, it is sometimes advisable to administer the quinine hypodermically. For this purpose I employ a sterilized solution of the bisulphate or the hydrochlorate, though it is rare in my practice that I see the malignant types of malaria.

Twenty-five years ago the so-called hemorrhagic malarial fever, or malarial hematuria, was one of the most frequent and fearful diseases in this county, but since then it has been gradually disappearing until it is one of the rarest diseases. So far as I can learn there have been only two or three cases in the county within the past eight years. I have had the good fortune to have seen only four cases, all of which occurred nine years ago—during my first year of practice. All four of these cases had had large doses of quinine to cure an attack of "biliousness," or to prevent an expected "chill." In one of these cases, in which I was called to consult with a physician in the western part of the county, the patient's urine had very nearly cleared up, but as he had some fever I insisted upon his having more quinine. The attending physician, who had considerable experience with "yellow disease," as the natives call it, objected on the ground that the quinine would cause a recurrence of the bloody urine, but yielded to my suggestion, and the quinine was given. In six hours there was a return of the hemoglobinuria, and more severe than the first paroxysm. The physician continued to treat the case without quinine, and the patient made an uninterrupted recovery. I have had so little experience with this form of malaria—if it be of malarial origin—that I will not attempt to outline any treatment; but the four cases which I have had convinced me, not only that the quinine would do no good and is not indicated in the treatment of the disease, but that in the majority of cases, if not in all, the quinine is the exciting cause of the breaking down of the red blood-corpuscles, with the consequent hemoglobinuria.

From the foregoing remarks it is clear that I consider quinine the drug *par excellence* in the treatment of nearly all forms of malaria, but unfortunately I have to treat many people who have a marked idiosyncrasy for that agent. I have seen persons in whom even small doses of quinine would produce great discomfort and even alarming symptoms, such as severe tinnitus aurium, nausea and vomiting, urticaria, or even marked depression; in others small doses can be tolerated, but not in sufficient quantities to destroy the plasmodium. In such cases, where these unpleasant effects cannot be prevented by the use of the bromides, etc., we are compelled to use the more unsatisfactory and less certain substitutes for quinine. Of these I get the best results from methylene blue in two-grain doses (0.13) every three or four hours. I usually give it in cap-

sule with powdered nutmeg and small doses of codeine, which seems to prevent the strangury and nausea which sometimes follow the use of the methylene blue when given alone. I have used methylene blue in a large number of cases of malaria, and I know that it has marked antiperiodic powers, though it is not as certain in its effects as quinine. In those cases where the "untoward effects" of quinine are not so marked, but sufficiently so to prevent its use in large enough doses to obtain its full antimalarial effect, I combine the methylene blue, grain i (0.065), with quinine sulphate, grains ij (0.13), with excellent results. In some cases, where the sulphate or hydrochlorate is not tolerated, the other alkaloids of cinchona are well borne. I have seen a number of persons who were always very unpleasantly affected by quinine, but who could take some of the proprietary "chill tonics," which are said to contain amorphous quinine, in such doses as to get their antiperiodic effect. Salicin has some reputation as a substitute for quinine, and I have used it in a few cases, but to get the specific effect the doses have to be so large, 15 to 30 grains (1.0 to 2.0), that in some cases it is not well tolerated by the stomach. Phenocoll hydrochloride, in daily doses of from 20 to 30 grains (1.5 to 2.0), is said to be another excellent substitute for quinine in the intermittent forms of malaria.

One who has not made frequent microscopic examinations of the blood in malarial diseases can hardly realize the marked and even grave changes that take place in the blood in a very short time. The blood count and hemoglobin test do not tell half the tale of the destruction of the red blood cells—indeed, it is almost unnecessary to make these tests, as a glance at the irregular sizes and shapes of the erythrocytes (poikilocytes), as well as the fragments of the red blood cells, is sufficient indication to the busy practitioner that iron and arsenic are demanded.

In some cases, particularly the chronic forms of remittent (estivo-autumnal) fevers, with enlarged spleen, etc., the quinine does not seem to have its specific effect until the anemia has been partially overcome. The following case, briefly related from memory, illustrates this point, as well as the fact that all continued fevers that do not respond to the use of quinine in a few days are not typhoid:

Girl, aged fourteen. Was brought from a neighboring county to me for treatment on June 21. History of having had fever for three or four weeks. Temperature 102° F., pulse 120, very anemic, enlarged spleen, etc. Microscopic examination of a fresh blood smear showed large numbers of hyaline, crescentic, and extracorpuscular forms of the estivo-autumnal parasite. Apparently no leucocytosis, but the white blood cells were heavily pigmented. Marked poikilocytosis, with many fragments of red blood cells, and other evidences of a severe hemocytolysis. Because of lack of time no blood count or hemoglobin test was made. Patient placed on full doses of quinine, iron, and arsenic. Fever continued, but general condition of patient improved. Quinine discontinued on fifth day, but iron and arsenic were continued. On the seventh day another examination of the blood was made, which showed numbers of the parasites present, but there were less evidences of anemia. She was then given quinine in solution, 4 grains (0.25) every three or four hours for five days, and two days after the quinine was left off another examination of the blood was made, which demonstrated the presence of a few parasites, but the blood-corpuscles were more nearly normal. She was so much improved that she was carried to her home, but the quinine was continued another week, and the arsenic and iron, with quinine in tonic and prophylactic doses, were continued for another month. She made a slow but certain recovery, and a few weeks ago I learned that she was in fine health.

For the treatment of the anemia following both the intermittent and remittent forms of malaria, the so-called "malarial cachexia," the following formula has given me excellent results:

℞ Quininæ sulph., 3jss (6.0);
Ferri redacti, 3j (3.9);
Ext. nucis vomicæ, grs. viij (0.52);
Acidi arseniosi, gr. j (0.065);
Ext. colocynth. comp., grs. x vel xv (0.65-0.97);
Podophyllini, grs. j vel iij (0.065-0.19).
Mellis, q. s.

M. Ft. in pilulæ No. lx. S.: One pill after each meal.

Many people have the idea that negroes

are but slightly susceptible to malaria, but I am convinced, for many reasons, at this time, that they are even more susceptible to malarial fevers than are the whites, and I think I can give statistics showing that I have excellent grounds for such an opinion. Of course malaria is essentially the same disease in the negro as in the Caucasian, but there are certain differences in its manifestations in the two races, that variations in treatment are often necessary. I had intended to discuss these differences in this article, but I fear that I have already taken up more than the space allotted to me; but in the near future I will prepare a paper entitled "Malaria in the Negro," in which I will go into detail on that greatly neglected subject.

THE TREATMENT OF INTERMITTENT AND REMITTENT FEVER.

By William Krauss, M.D.,
Memphis, Tenn.

The very first part of the treatment of any disease is prophylaxis. The prophylaxis of malaria consists mainly in the avoidance of the bites of infected Anopheles, as with the exception of intravenous injections of malarial blood this is the only way malaria has ever been transmitted experimentally. The drinking of superficial well water and other alleged causes of malaria must be understood to be agents precipitating an attack in one already infected. Hence such measures as will preserve the highest state of physiological resistance are not to be neglected. Many persons tide over slight infection by taking "something for the liver." Others will take occasional doses of some patent "chill tonic," of which we have so many in this district. Whiskey and quinine, plenty of the former and very little of the latter, is a household remedy for the prevention and cure of the "chills." The profession should be more energetic in discouraging such occasional and indifferent self-dosing. Small doses of quinine are of service in preventing infection where one expects to remain in a malarial district for a short time only. For permanent residents this is extremely impracticable and harmful; it immunizes the malarial organisms against our most potent remedy. If one lives in a screened house and remains indoors at night and away from shaded places in the daytime there is very little danger of infection. Most people forget to screen their fireplaces and wonder how mosquitoes get into the house. All entries should have double screened doors, and the housekeeper should see that intruders are driven out every morning. The mesh of the screens should be small, not less than sixteen to the linear inch.

Treatment of Intermittent Fever.—Cases of intermittents do not as a rule come to us until they have had one or more paroxysms and have "tried" things that that arch-criminal, a friend, has recommended. The first thing to do is to order the patient to bed, even in the interval. With a lecture or some diplomacy, according to whom you are dealing with, this can always be done. This, coupled with a milk diet, is half the treatment in simple cases. If sufficient time intervenes before the next expected paroxysm, it is my routine to prescribe the following:

℞ Hydrargyri chloridi mitis, 0.3 (grs. v);
Podophyllini, 0.02 (gr. ⅓);
Extracti nucis vomicæ, 0.06 (gr. j);
Aloini purificati, 0.02 (gr. ⅓);
Pulveris aromatici, 0.5 (grs. viij).

Misce et fiant caps. gelatinos. No. iv. S.: One every two hours.

This acts upon the entire intestinal tract, as well as upon the muscular coat, the aromatic powder being a corrective. The dose is varied to meet indications, and if the patient has ever been salivated the calomel is omitted. If this has to be followed by a saline, I give sodium thiosulphate, 10 grammes (2½ drachms) at a single dose, in a glass of water. If the case in urgent, a saline followed by an enema may be substituted. The cathartic may also be given with the quinine, but it is to be remembered that the griping of a cathartic added to the discomfort of a high fever is only justifiable when there is no choice. This preliminary emptying of the intestinal tract not only facilitates the absorption of the specific remedy, but greatly increases the tolerance for and efficiency of the drug and seems to prevent too great a rise of temperature during the next paroxysm, should we fail to abort it.

This effort to abort the next expected chill is, after all, the most urgent indication to be met. For this purpose we administer quinine, not less than 1½ grammes (about 20 grains), in divided doses, if we have time, otherwise in two doses an hour apart. The salt of choice is the basic hydrobromate (ordinary bromide), the salt of urgency the neutral hydrochlorate, which is very soluble; these are given packed dry into a capsule, followed by a hot drink. If there is reason to fear non-absorption from the stomach a dilute solution of the "bimuriate" in physiological salt solution can be injected with an antitoxin syringe anywhere in the loose cellular tissue. To prevent an intermittent paroxysm the quinine must be all given at least four hours before the chill, though subcutaneously it may abort in two hours. In any event, if the dose has been sufficient, it will practically kill that group, even if it does not prevent the chill.

Management of the Fever.—When seen during the chill, a dose of morphine with atropine will make the patient more comfortable. Hot applications to the body (dry) and hot foot-baths, etc., promote comfort. When the fever begins to rise, there is no objection to some of the phenol antipyretics, since we do not expect ever to have to repeat the dose. They tranquilize the patient and promote diaphoresis. Cold spongings are grateful, but the cold bath is a torture to a malarial patient, and should only be resorted to in case of necessity. Ice-caps and cooling drinks are well liked. It is hardly ever necessary to cinchonize during the fever, as it cannot by any possibility abort the fever and adds greatly to the discomfort and nervousness of the patient.

The Interval.—After the fever has subsided the patient may be hungry and want to get up. I insist upon his remaining in bed, and if the fever is quotidian, the next day also; give only liquid diet and order the quinine in capsules of 0.5 grammes (gr. vij) every six or eight hours. If the fever has remained down, the patient is allowed to get up and take a more liberal diet. The quinine is now given 0.5 to 1.0 gramme (7 to 15 grains) at bedtime for a week, and in half that dose for another week. I sometimes prescribe Warburg's tincture, after the fever has been broken, for its tonic and laxative effect, instead of the quinine. Iron and arsenic are unnecessary as a rule.

Before considering remittent fever we will discuss substitutes for quinine. The baser alkaloids of quinine require to be given in larger doses. Quinidine is more apt to disturb the bowels. Cinchonidine is quite reliable in doses of one and a half to two times the dose of the standard alkaloid, and is frequently borne when quinine is rejected. The various tasteless syrups are mechanical mixtures of quinidine alkaloid, essence of lemon, and simple syrup; the much advertised tasteless chill tonics contain the alkaloid quinidine, molasses, and ferric oxide. A more reliable tasteless preparation can be made by mixing euquinine with any pleasant, *neutral, non-alcoholic* vehicle. Its dose must be a little larger than that of quinine. My experience with it has been quite favorable. It is easily borne by delicate stomachs and a good remedy to give to children. Only once have I seen toxic effects, in the case of a very nervous lady, who took 1.0 gramme (15 grains) at one dose, having forgotten to take the previous one. She had complete motor aphasia for several hours; voluntary movements of the tongue were not interfered with. There were no after-effects. When quinine salts produce urticaria, their combination with arsenic will in some cases prevent it. The various preparations of cinchona bark have no place as antiperiodics. Salicin was used largely when the cinchona alkaloids were very expensive; it is a very feeble antiperiodic. Dr. Joseph Jones, of New Orleans, several years ago recommended nitrate of potassium very highly as an antiperiodic. I had charge of the city dispensary at the time and tried it extensively, but had to abandon it; I could not assure myself that it ever had any effect. A Dr. Brodnax in Louisiana, I am told, lauds acetanilid very highly. I do not see why we should add to the blood destruction already going on, and, so far as I know, there is no experimental evidence that it has any plasmodicidal effect. Methylene blue has been recommended, mostly by French and Italian writers. There is some experimental ground for this, as very weak solutions uniformly arrest the ameboid motions of the plasmodia. Moore (*Medical News*, Dec. 6, 1902) finds that it cures 60 per

cent of cases of intermittents, requiring a day longer than quinine, the controls with which all got well (100 per cent). It must be given with nutmeg to prevent strangury. Such large doses as would be required in pernicious malaria would be entirely out of the question. Arsenic is, in my opinion, a very feeble antiperiodic. It is probable that its effect is a secondary one and due to its tonic and stimulating effect upon the blood-making tissues. Sodium thiosulphate is probably an antiperiodic. I have frequently seen in my wards patients who had had no other treatment remain definitely free of fever. Its main use in malaria is as an intestinal evacuant, especially in post-febrile hepatic torpor, where the tongue is broad and yellow and the breath is fetid. All of the substitutes for quinine are given more or less in the subacute or chronic fevers, indicating a common consent to the undisputed superiority of quinine where the symptoms are urgent.

Other Modes of Administering Quinine.—The various methods of giving quinine by the rectum have, in my opinion, absolutely no place in modern therapy. The injection of concentrated solutions of acid salts into the arm formerly so much in vogue have done more to bring the hypodermic administration of quinine into disrepute than anything else. When this is done aseptically no abscess results, but, what is just as bad, a slough. The proper way to give quinine subcutaneously has already been pointed out. The same solution, or a weaker one, as when a saline injection is indicated anyway, can with advantage be given intravenously. The median basilic vein is made prominent, as in venesection, an incision is made over it, and the vein brought into the slit. A comparatively small needle is used, directed upward; the ligature above is then released and the fluid allowed to run in slowly. The wound is sponged with sterilized water and bandaged over a light compress. The stronger solution was first recommended by Bastianelli, and the weaker by Gray, of Clarksdale, Miss. Laveran's solution is said to be quite unirritating in spite of its concentration. It consists of quinine bimuriate, 0.5 (gr. vii); antipyrin, 0.2 (gr. iii); water, 1.0 (15 drops). The antipyrin aids in the solution. The solution cannot be used where antipyrin is contraindicated, as in cyanosed comatose cases.

Periodic Malarial Fever.—Occasionally we see cases that relapse regularly at stated intervals. I have seen chills recur in one man every Sunday in spite of all the treatment that I have ever heard of. This has been some years ago, and before the life history of the malarial organism was well worked out. They were probably reinfections. The only cure for this form of paludism is removal from malarial influences for that season at any rate. Constant, interrupted, combined, and all other forms of cinchonization seem to have no effect.

Remittent Fever.—The treatment of this is not essentially different from that of the intermittent, except that we cannot adjust the time of giving the quinine as nicely to the indications or to the comfort of the patient. The rule is to give it in single large doses three times a day until the fever has subsided, and then follow with Warburg's tincture for some weeks. Sometimes a more or less subcontinuous fever may persist for some time after the organisms are no longer demonstrable in the peripheral blood. This class of fevers have given rise to considerable discussion as to the infallibility of quinine in malarial disease. Frequently some other trouble, such as typhoid fever, will light up a latent malaria, and although the symptoms are distinctly malarial from the start, quinine fails to break the fever. The therapeutic test is worth nothing. One may be led to believe that quinine had been *properly* administered when it has perhaps not been given, or, if so, it has not been absorbed, and the final test is after all the microscope. The so-called post-malarial fever, which I regard as a sort of acute cachexia, yields best to sodium thiosulphate or bichloride of mercury.

The Pernicious Form.—No malarial paroxysm in the torrid season should be regarded lightly. A mild attack or trifling prodromes may suddenly fulminate into one of the most desperate conditions that a physician ever has to deal with. It calls for all the resources of modern medicine. A violent headache, an intractable vomiting, even if the patient does not appear very ill, are the warnings for the physician to get to work at once. No matter whether

we have a comatose, an algid, a choleraic, or dysenteric, the first indication is to equalize the circulation. Heroic hypodermic injections of strychnine, atropine, ether, camphor, or caffeine, the use of mustard plasters, hypodermoclysis of salt solution, are the first measures to adopt. The comatose form must be strictly differentiated from sunstroke or heat prostration, both of which have similar prodromes or histories. Only a microscopic examination of the blood will differentiate. There is no longer any excuse for ignorance or lack of equipment along this line. Any one can take a few weeks off during the dull season and learn this much technique.

In all forms of pernicious malaria not less than two grammes (30 grains) of quinine should be put into the veins at once. The dose may be repeated subcutaneously three or four times in twenty-four hours, as may be required. It is not necessary to repeat the intravenous injection. If you have not got up enough reaction for the subcutaneous injection to be absorbed by the time for the second dose, the patient is very probably dead. Oxygen is very beneficial in the cyanosis of pernicious malaria, but this is rarely obtainable where such cases are seen most.

The pyrexia of this form of malaria calls for the ice pack, ice-water enemas, or stomach irrigation (the latter if there is intractable vomiting). The phenols and morphine have no place here, and the comfort of the patient cannot be consulted. Enemas of bromides in starch water are used for restlessness and headaches. Bloodletting in comatose malaria may be thought of, if the state of the pulse permits. Croton oil on the back of the tongue in unconscious patients will empty the bowels.

The anemia following all forms of estivo-autumnal fever requires energetic and persistent treatment. As a rule, iron is not well borne. Preference should be given to solutions of the organic compounds, as the peptonate. Many preparations of this kind are inert. Any thickening or red coloration or precipitate indicates reduction to ferric oxide, which is inert. Arsenic finds use here; it should be pushed to the limit of tolerance. Glycerin extract of red bone-marrow has seemed to me to do good.

Latent and Masked Malaria.—We see such cases in our office practice. They present symptoms of the most diverse character, periodic pains, anorexia, malaise, etc. Only such cases as show the typical leucocyte variation of malaria—*i.e.*, great relative increase in large mononuclear cells—are to be treated as malarial. I have found the following prescription very useful:

℞ Quininæ hydrobromatis, 2.0 (grs. xxx);
Hydrargyri chloridi mitis, 0.3 (grs. v);
Pulveris capsici, 0.1 (grs. iss);
Pulveris Doveri, 0.3 (grs. v);
Aloini purificati, 0.02 (gr. 1/6).

M. et fiant caps. No. vj. S.: One every four hours.

Substitute podophyllin for calomel if the patient has been salivated. The patient is directed to take the usual after-treatment. He is told that if he does not go to bed the medicine will make him sick. This shotgun prescription is justifiable, because as a rule the patient will never be seen again until the next "spell."

The use of calomel has been condemned by writers who do not have to practice in intensely malarial districts. We have little serious malaria in Memphis in our general visiting practice, but our hospitals receive many laborers from the surrounding lowlands. It was not until I had to deal with this class of patients that I became converted to calomel, and if I were restricted to two drugs in the treatment of malarial fevers, I would say: "Calomel and quinine."

Late manifestations, such as cachexia, enlarged spleen, hemoglobinuria, do not properly come under the head of "fevers." Some men who should know better regard hemoglobinuria as acute malaria. If it had not been for the malaria they neglected last year, they would have neither the "big spleen" nor the "bloody urine" to deal with.

Some practitioners are afraid to treat acute malarial fevers in cachectics for fear of provoking hemoglobinuria. Although the fear is well grounded, the risk is greater if the patients are not treated, and especially if treated in the half-hearted way usually done. All chronic manifestations of malaria are a reproach to the profession, at least to a great extent. If they used all their powers of persuasion against self-treatment and handled every case like

a house on fire, they would do their full duty. Every infected person is a source of danger to himself, his family, and his community, because he is a source of infection.

358 to 364 Randolph Building.

TREATMENT OF INTERMITTENT AND REMITTENT FEVER.

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Although hepatic fever, ulcerative endocarditis, chronic vegetative endocarditis, rheumatic fever, syphilis, and acute tuberculosis may be associated with regularly intermittent fever, and numerous diseases with remittent fever, the clinical terms intermittent and remittent fever are generally used to denote malarial infection. It is the purpose of this article to deal with the treatment of these fevers, as adopted by physicians of the South where malaria is endemic.

It may not be out of place to refer briefly to the epidemiology of these fevers in this section.

It is generally agreed that regularly intermittent malarial fever is due to infection with the spring tertian and quartan parasites, whose life cycle is forty-eight and seventy-two hours respectively; and the remittent fevers to infection with the estivo-autumnal parasite, whose life cycle is twenty-four hours or more.

In the Yazoo and Mississippi delta, the spring tertian is met with usually in the early spring and as late as the first of June, after which time the estivo-autumnal is most frequently encountered. Consequently the vast majority of the cases of malaria which we encounter in this section are infections with the estivo-autumnal parasites. The quartan is extremely rare, only two cases having come under my observation in an experience of ten years.

As said above, the benign tertian infection is usually accompanied by regularly intermittent fever with paroxysms of wonderfully equal duration. Not infrequently two groups of parasites are present, in which case quotidian paroxysms occur. However, very rarely these infections may be associated with irregularly intermittent or remittent fevers.

The Italian observers and others, notably Craig in this country, contend that there are two varieties of the estivo-autumnal parasites, one associated with quotidian paroxysms and the other with tertian paroxysms. Morphologically one not infrequently observes two varieties of these parasites—one the regular signet-ring parasite, the other a ring whose protoplasm is of the same width throughout, with chromative granules at opposite points on the periphery of the rings. I have not been able to satisfy myself that these parasites are associated with distinctive types of fever. However, regularly intermittent fever is associated with these parasites much more frequently than one is led to infer from the literature. The first paroxysms are almost always intermittent, either tertian or quotidian; though the tendency in these infections is toward a remittent temperature curve and the development of pernicious symptoms.

It must not be inferred that the so-called benign tertian infections are never associated with pernicious symptoms, as I have seen both comatose paroxysms and hemoglobinuria associated with these parasites.

The treatment of these infections may be considered under two general heads, viz., prophylaxis and remedial measures.

PROPHYLAXIS.

The recent researches in malaria have rendered the subject of its prevention an extremely interesting one. Four methods have been suggested, viz.: (1) Destruction of mosquitoes; (2) protection from the bites of mosquitoes; (3) the administration of quinine; (4) in the tropics, where the native children are known to be largely infected, segregation.

After the examination of the blood of numerous children from one to five years of age in this section, I do not believe they very generally harbor malarial parasites, as has been shown to be the case in some parts of the tropics.

Much can be done by teaching the laity the part which the mosquito plays in the conveyance of malaria, and where practicable the means to be used for their destruction. The suggestions of Dr. Ronald Ross in his little book entitled "Mosquito Brigades" are admirable. But as long as we are surrounded by present conditions,

I fear that it will be impracticable to completely destroy the Anopheles.

So the chief measures which we have to prevent the spread of malaria are the protection from the bites of mosquitoes, and the administration of quinine.

The former of these measures is best effected by thoroughly screening the houses and the use of mosquito netting over the sleeping beds. To be effective, however, it should of course be carefully seen to that the Anopheles are kept out of the bars. They will often be found lurking in the dark corners of houses well screened and thought to be mosquito free, while up in the folds of the mosquito netting is an excellent place to find these mosquitoes if the housekeeper is at all careless in keeping the netting free.

A cursory review of the literature shows that observers in different parts of the world are by no means agreed as to the value of quinine as a prophylactic. Many of us, alas! have not advanced far beyond the stage at which practical medicine was before the time of Louis, speaking of which Dr. Holmes said: "The history of practical medicine had been like the story of the Danaides. Experience had from time immemorial been pouring its treasures into buckets full of holes. At the existing rate of supply and leakage they would never be filled, nothing would ever be settled in medicine. But cases thoroughly recorded and mathematically analyzed would always be available for future use, and when accumulated in sufficient number would be trustworthy and belong to science."

So it is we have experiments recorded in which quinine has been given in routine fashion as a prophylactic in from one-sixth to five grain doses three times a day, sometimes in cases of questionable diagnosis, often without reference to the form of parasite against which it is used, without reference to the condition of the patient, such as gastrointestinal disturbance, which would interfere with the absorption of the drug, and without reference to the association of other prophylactic measures which we know are potent in warding off malarial attacks.

The French, among whom MM. Corré, Mawand, Thorel, and Bizardel, and the officers of the French marines, report that it is effective against the mild forms of malaria, but of little value against the graver forms. Among the Americans, Bryan and the Federal surgeons of the Civil War found it a valuable prophylactic. Bryson and Duncan, among the English, report in favor of it upon control experiments made without reference to the surrounding conditions or to the microscopical test. The experiments carried out on a large scale in the Indian jails report generally in favor of it, but it seems that no one except Fearnside performed the experiment with reference to the action of quinine upon the malarial parasite. He found that quinine had no effect upon crescents when once formed, but that it had apparent action in the prevention of their formation. He thinks it a valuable prophylactic in persons who have not been exposed to malaria, and in modifying the severity of the attack. Marsden, Rees, and Battersby favor its use. On the other hand, the Austrian and Russian surgeons found it of no value as a prophylactic. No benefit was observed in the Malay wars. Harvey found that it was of no advantage in the West Coast regions of Africa. It was of no use in the Ashantee wars of 1893 and 1896. French Mullen, who reported in favor of it in 1896 and 1897, changed his view in 1898, and observed that it not only did not diminish fever attacks, but seemed to increase bowel complaints. Robert Fielding-Auld opposes its use as a prophylactic, on the grounds that it only acts against the parasites when present, that it produces digestive disturbances, and that it leads to congestion and torpidity of the liver.

Possibly the most convincing experiment with reference to the beneficial effect of quinine as a prophylactic is that of Koch, made at Stephansort, German New Guinea, in 1899-1900. From this report I take it that quinine is used by Koch in the same manner in which it is administered therapeutically—*i.e.*, one gramme in one daily dose until the parasites disappear from the blood. Then after a period of seven days, one gramme is given on two successive days, then another interval of seven days, and quinine in the same way, for at least two months. Koch concludes from the experiment mentioned above that human beings susceptible to malaria in a malarious region can with certainty be protected against infection. He, how-

ever, adds that quinine prophylaxis is always somewhat troublesome, and for many people extremely disagreeable.

On the other hand, Celli, speaking of the immunizing action of quinine, says: "It is not of practical use inasmuch as it is a remedy which in small doses is not efficacious, and in large doses cannot be taken for a long time, as it is injurious to the digestive and nervous system." He also points out that "by making Anopheles bite patients undergoing quinine treatment and having gametes in the circulating blood, the sexual cycle develops in spite of the treatment, consequently complete prophylaxis cannot always be obtained by means of this disinfection, notwithstanding what Koch says about it."

Further recent experiments both in the tropics and in Italy seem to show that quinine exerts a decided influence in the prevention of malaria. "The latest Italian experiments seem to show that only about two per cent of those taking quinine as a preventive have attacks of primary fever. I think that Manson is correct when he says that the reputed prophylactic effect of quinine is but a phase of its therapeutic action; it is the application of the drug to the parasite, and not an immunizing of the body against the entrance of the parasite, one has to deal with; therefore if one may confidently expect that it will cure a malarial infection it will prevent its development."

So it will be seen that there is much of value in the view of those who are for and against the use of quinine as a prophylactic.

In our climate very seldom does either the spring tertian or the estivo-autumnal respond to five grains of quinine three times a day. Hence the practice of giving small amounts of quinine for breakfast, dinner, and supper with a view to prophylaxis is of questionable benefit, and it is possibly not without injury, in that it produces general disturbance, possibly anemia, and it is further objectionable in that it interferes with the scientific diagnosis of malaria when it does develop. I have seen this illustrated in the case of a family of five children who took quinine regularly in small doses. None of them escaped malaria. One succumbed to a pernicious attack in which the first one or two paroxysms were masked; another came near going the same route; and all were in such a run-down condition that they had to move to a non-malarial climate for the balance of the summer. However, after malaria has developed the administration of 15 grains of quinine once a week after the parasites have disappeared is effective and indicated to prevent the return of the paroxysm, which will almost certainly come on without it. This amount given one or two hours before retiring, the disagreeable effect will be reduced to a minimum.

To sum up, the most effective means at our command at the present for the prevention of malaria is to prevent as far as possible the bites of the Anopheles and the thorough treatment of cases of malaria as they develop.

REMEDIAL MEASURES.

These may be spoken of under the heads of (1) general measures, (2) synergistic measures, (3) specific medication.

1. *General Measures.*—The patient should be put to bed and carefully protected from the bites of mosquitoes by netting for the benefit of those with whom he is associated. His diet should not be specially restricted, unless some special indications arise. At times the stomach is so irritable that it is best to withhold food for a time.

2. *Synergistic Measures.*—The necessity for a thorough gland arousement in these cases does not seem to be sufficiently appreciated by those who write upon the treatment of these fevers. Nothing seems to so successfully meet this indication as some one of the preparations of mercury. The best of these is calomel, which may be administered in the dose indicated with sodium bicarbonate and extract of hyoscyamus. The effect of the calomel may frequently be continued and often supplemented with advantage by the administration of sodium hyposulphite. Other indications are to be met symptomatically.

3. *Specific Medication.*—Laveran at first noted that the parasites to which he ascribed the malarial fevers disappeared from the blood upon the administration of quinine. The action of quinine upon the parasite has been the occasion of study by various observers since that time. In 1899, So Monaco and Panichi studied the effect of quinine upon the parasites in

the fresh state. They found upon introducing a solution of quinine into a fresh preparation of malarial blood that the parasites were affected variously according to the strength of solution introduced. Thus a very weak solution caused them to swell; a weak solution stimulated them for a short time; one of medium strength stimulated the parasites markedly and terminated in their extrusion; a strong solution caused them to contract suddenly within the capsule. They also observed that the resistance of the parasites to the action of quinine is not always the same. The resistance diminished at the approach of the febrile period, and during its development. The maximum resistance was found during the apyretic period.

These observations are in accord with previous observers, such as Golgi, Marchiafava, Bignami, Mannaberg, and others. The study of specimens stained by the Nocht-Romanawsky method, or modifications of this, shows that quinine also exerts a necrotic action upon the parasites, as shown by the loss of affinity of the protoplasm for the stains.

In the spring tertian infections, 15 grains of quinine is given about four hours before the expected paroxysm, or this amount may be given in 5-grain doses at intervals of an hour. This will not usually prevent the oncoming paroxysm, but will modify its severity and prevent the next. Or if given as the sweating stage comes on, will prevent the next.

In estivo-autumnal infections of intermittent character, the quinine may be administered as before, say 5 grains every hour until four doses are given, the last to be taken about four hours before the expected paroxysm. Where the fever is remittent or continuous, I prefer to give 5 grains every four hours. Rarely will more be required to control the fever. If there is a tendency for the fever to go higher, an extra 10 grains at the high point will usually suffice. Continued medication with quinine must be insisted upon after the subsidence of the fever, say 15 grains once a week for several weeks.

There are many salts of quinine; of these the sulphate, on account of its cheapness and reliability, is most generally used. For the best physiological effect it is preferable to administer this in solution; but on account of its disagreeable taste it may be administered in capsules with dilute hydrobromic or hydrochloric acid.

The dihydrochlorate possesses advantages over all the other salts in having a larger percentage of the alkaloid, in being less bulky, more soluble, less liable to irritate the stomach, and it is adapted for hypodermic use. The drug may be administered (*a*) by mouth, (*b*) hypodermically, (*c*) by hypodermoclysis, (*d*) intravenously, (*e*) by rectum.

Ordinarily administration by mouth will suffice. But sometimes the condition of the stomach is such that the drug administered in this manner is not absorbed. Sometimes the severity of the attack is such that a quicker means of getting the drug into the circulation is desirable. In such cases methods *b, c,* and *d* may be used.

Two objections have been raised to the hypodermic administration: first, the drug is not absorbed, hence very little or no physiological effect; and secondly, disagreeable local sequelæ which are apt to develop. The reports from several practitioners as regards these points and my own observations convince me that quinine administered hypodermically produces physiological effects more rapidly than when administered by mouth, but extreme care must be exercised to prevent disagreeable local sequelæ. The solution should be well diluted and injected deeply into the tissues.

By hypodermoclysis. Fifteen or twenty grains of the bimuriate of quinine and urea are dissolved in a pint of normal salt solution, the whole sterilized, and infusion performed in the usual manner. I have on several occasions used this with marked benefit. It is the method *par excellence* in the algid forms of pernicious malaria of gastrointestinal type, or where the heart seems to be bearing the brunt of the attack, or in cases where the kidneys are acting poorly. I do not think it would find such marked indication in the comatose forms of malaria. Here the hypodermic or intravenous methods are preferable.

Intravenously. The origin of this method belongs to Bacelli, who claims to have markedly reduced the mortality of the comatose forms of pernicious fevers in Italy. The objections which may be

urged against this method are the difficulty of preparing the solution in emergency cases in private practice with sufficient asepsis, and the difficulty of administering it in these cases, it being often a difficult matter to enter a vein.

By rectum. Some have claimed good results from this method, especially the Indian physicians, but my results have been so unsatisfactory that I have discarded its use altogether.

A FEW REMEDIES OTHER THAN QUININE IN THE TREATMENT OF MALARIA.

By M. Goltman, C.M., M.D.,
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You ask me for a few remedies other than quinine in the treatment of malaria. In a rather extended experience I recognize only one true remedy—quinine the specific. But often this drug is not tolerated, no matter how given. I have reported a case of severe urticaria bullosa with marked systemic effects from a very minute dose of quinine (*vide Medical Record,* Aug. 22, 1903). So it sometimes happens that we are driven to the exhibition of other drugs on account of personal idiosyncrasies, and again because the drug itself fails us.

The following classification will facilitate the discussion of this subject:

1. Simple intermittent malarial infection.

2. Estivo-autumnal malarial infection: (*a*) Acute paroxysmal, with short intervals—quotidian, tertian, etc.; (*b*) chronic paroxysmal, with long intervals and acute exacerbations; (*c*) remittent or subcontinuous; (*d*) malignant, congestive or hemorrhagic; (*e*) malarial methemoglobinuria (Krauss and Goltman, *vide Memphis Lancet,* December, 1898).

3. Postmalarial conditions: (*a*) Anemia, hematogenous jaundice; (*b*) gastritis, hepatitis, splenitis, enteritis, neuritis, *glomerulitis and nephritis.*

From this classification it will be seen at a glance that malaria and its sequences cannot be dismissed with a few doses of calomel and quinine. What will cure a simple intermittent fever will do positive harm in malarial methemoglobinuria, and in some if not all of the so-called postmalarial conditions.

In the simple intermittents it sometimes makes very little difference what medicine is used.

I can say without fear of successful contradiction that I have seen some of these cases undergo spontaneous cure without any medication whatsoever after having had one or more paroxysms. I have seen the same thing happen after a dose of paregoric, ginger, or capsicum. Quinine will certainly cure them. In estivo-autumnal infection the therapeutic problem becomes more and more difficult according to the organs involved. This form of infection sometimes resists quinine and other drugs no matter when or how given. I cannot say with what frequency this occurs, but I know that it does occur quite often. Irregular and refractory segmentation may explain it. Insufficient dosage or non-absorption does not, because I have made sure on these points. The paroxysms are usually far apart in these instances, and the time of any expected attack very difficult or impossible to determine unless persistent blood analyses are made. I have just returned from a case of this kind. The last paroxysm occurred just four weeks ago. Quinine was given continuously for about ten days without a return of the fever. This morning (Dec. 13, 1903) the patient had a slight chill followed by fever, and when I saw her at 3 P.M. she was in the sweating stage. To have examined this patient's blood daily throughout this entire period would have been out of the question. She would not have permitted it. It was examined and found loaded with parasites. In these long interval cases I have called upon the various therapeutic agents outside of quinine with little or no success. Large doses of arsenic do good, particularly if combined with iron, manganese, and strychnine, Warburg's tincture has always disappointed me, likewise methylene blue.

In spite of every remedy energetically given recrudescences will take place at times. A change of climate is then in order. I have frequently seen patients enter the hospital from the Arkansas and Mississippi deltas, and within a month show marked improvement on the same remedies used at home without success. Likewise I have seen Memphis people similarly benefited by a stay in St. Louis, which city is not notorious as a health

resort, and is quite as much if not more malarious than Memphis.

Then again I know of several patients apparently cured of this form of malaria relapse after being in New York or Atlantic City a few days, and then become cured with very little or no treatment. One of these cases furnishes a rather amusing incident. There was talk of yellow fever in Memphis. When the patient in question reached Atlantic City, where there were many Memphians, he had a pronounced chill and was wildly delirious on the subject of yellow fever. Hematemesis occurred, and the diagnosis of yellow fever—by the Memphis contingent—followed, and how they did scamper!

The general health soon suffers from repeated malarial attacks. Digestion becomes impaired, the liver and kidneys engorged, and the eyes and skin icteroid—hematogenous jaundice. This may occur in spite of the disappearance of parasites from the superficial circulation, although they may still exist in the internal organs. Decided anemia with enlargement of liver and spleen soon follow. Such cases are benefited by a change of residence, an ocean voyage, or a sojourn at the Hot Springs of Arkansas or Virginia. To those who cannot afford these luxuries I recommend Turkish baths, hot and cold douching with friction, gentle elimination, and tonics. I believe, when relapses occur after the intelligent and persistent use of quinine and the patient enters into the chronic cachectic state, in which his internal organs become very much clogged, that methemoglobinuria is likely to occur, and quinine should be stopped, as it is then a provocative agent instead of a specific against it. It is astonishing to note the quantities of quinine that are wasted in these cases. Pepsin and hydrochloric acid and proper diet will help the stomach, cascara the bowels, plenty of good water inside and out the liver and kidneys. I use calomel sparingly. In the face of high temperature it often salivates, and thus increases blood destruction. Epsom salts, rhubarb, cathartic pills, phosphate of soda, and cascara act just as well as calomel in my hands.

The estivo-autumnal infections with short and definite intervals respond readily to quinine. I have also used euquinine and cinchonidin in these cases with apparent success. The remittent or subcontinuous form—the so-called bilious remittent fever—is more stubborn than the preceding form, and nothing but quinine will do any good.

In the malignant cases—those of the congestive or hemorrhagic type—it would be criminal to waste time on any other remedy besides quinine. In these cases I use it heroically—ten, twenty, and thirty grains to the dose hypodermically or intravenously. In desperate cases I know that I have saved life with intravenous injections of quinine in salt solution. Here is where salt solution is indicated, together with the diffusible stimulants.

Quinine has no place in the therapy of malarial methemoglobinuria, or hematuria, as it is usually called. This should be treated like a severe nephritis of toxic origin. A glance at some kidney sections in my possession will verify this statement. The uriniferous tubules are blocked with granular detritus, not blood-clots, as in the hemorrhagic cases. Intertubular drainage is interfered with, resulting in still further tubular compression and more complete urinary stoppage. The glomeruli are distended and the *efferent* circulation more or less impeded. This impediment cannot be forced by sodium hyposulphite, turpentine, diuretin, digitalis, or a quart or two of salt solution. These measures add insult to injury by increasing the pressure and still further impeding kidney action. Cupping of the loins, hot packs, pilocarpine, are here indicated, and at times must be used with a free hand.

Morphine will allay kidney irritability and lessen trauma. I know many of my delta friends will hold up their hands in holy horror at this statement, but I have used morphine with the happiest results, and the more I use it the better I learn how to use it. I never overwhelm the patient with it, but I do try to make him and his kidneys comfortable. The desire to urinate is frequent and at times intense. These symptoms are often interpreted as being due to retention, and the catheter is passed, only to find little or no urine in the bladder. Do we not have the same symptoms in acute nephritis and in simple congestion of the kidney, and would we in these conditions give huge doses of calomel and quinine, turpentine, digitalis,

and other irritating diuretics? Yet with these facts before us we are frequently guilty of these gross errors.

Many times have I seen these sufferers at the hospitals with loosened teeth, fetid breath, and salivated, in the attempt to produce bilious stools, which do not, however, in severe cases, lessen the amount of abdominal distention, which is nothing more or less than a paretic condition of the bowel due to splanchnic paralysis. The extreme purgation is quite prone to increase this paretic tendency, and it does increase it. Here is where I give morphine, and soon follow it with an injection of alum water, cold, should the gas fail to pass. When once kidney function becomes reëstablished, good, pure water and plenty of it is the best diuretic.

In view of Whittaker's successful nephrotomy in a case of postpuerperal eclampsia with suppression for seven days, a confrère suggested the measure in a case of methemoglobinuria with complete suppression. It was not tried.

Postmalarial affections signify, to me, always some definite pathological lesion, as a reference to the classification above will show. These lesions require appropriate treatment. A word, however, as to glomerulitis and nephritis. At the Memphis City Hospital I make it a point to have the urine closely watched and studied. Transient albuminuria is common, and casts—hyaline and granular—are frequently encountered after repeated malarial attacks.

To sum up, I can say that in the treatment of estivo-autumnal malarial fever I have tried everything that is usually tried in these cases, as well as everything that I hear or read about, with very little success outside of quinine, and that occasionally this drug too will fail.

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THE TREATMENT OF MALARIAL FEVER.

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There is probably but one disease the treatment of which can be described by one word. It is hardly necessary to say that the disease is malaria, and the one word quinine. This assertion is true, however, to a limited extent only. In fact, one of the purposes of this article is to call attention to certain other remedial measures, which, though they are subsidiary to the salts of cinchona, yet are of great importance, and perhaps are given too little attention by many of those who are called upon to treat malarial diseases, or to write upon the subject. It is scarcely incumbent upon me to consider the urgent necessity of using the utmost care in adopting those means for the recognition of malarial infection which a recent study of the disease and its causes have placed within our reach; but malaria is such a protean disease, its manifestations are so often obscure, it comes in such varied guise, it assumes so frequently the symptoms of other diseases, that oftentimes it may deceive the most careful observer. Hence the urgency of knowing how to recognize its symptoms and to place a correct interpretation upon them. I may be excused in this connection for referring to two or three cases illustrating the above statement.

CASE I. —Having occasion a few months ago to make a short visit to an intensely malarial locality, I was consulted by a brother physician, Dr. M—. This gentleman did quite an extensive practice, and was thoroughly familiar with malaria in all its forms, yet failed to recognize his own trouble. Notes of the case were not taken at that time, hence they are here given from memory.

I found the patient with a temperature of 101°. He was not aware that he had fever at all, and was going about his business as usual. The symptoms were those principally of disturbed digestion, with a disposition to eructations. The bowels were rather constipated, tongue slightly coated and somewhat thick and edematous at the edges. The complexion was muddy, and the spleen and liver enlarged and tender. There were no evidences of any paroxysms, no rigors, no pain—no evidence of anything but slight fever, and that apparently of a continued type. The patient was surprised when the use of the thermometer discovered the existence of a continued type of fever, which had probably been lasting several weeks. No opportunity was given for a microscopic examination of the blood, but believing the case to be one of continued malarial fever, resulting in passive congestion of the abdominal viscera—namely, the liver,

spleen, stomach, and intestines—treatment was directed to the malarial cause of this condition, and the case passed to an uninterrupted recovery.

CASE II.—This was a Methodist minister from the same town, but the symptoms in this case were entirely different. The patient came to me *en route* to another locality, and I did not have an opportunity to thoroughly study his case, but subsequently heard from him that the antimalarial treatment was successful. The symptoms in this case were those of a severe gastrointestinal irritation, namely, sudden nausea, vomiting, gastralgia, choleraic diarrhea, coming on suddenly and periodically without previous dietetic indiscretion, or of any cause which could be ascertained relating to the ingesta. These attacks were so prostrating in their results that the patient feared a fatal attack.

No opportunity was given in this case for the examination of the blood, but the history of the case, the paroxysms, and periodical nature of the attacks, the residence of the patient, the appearance of his tongue, and other symptoms pointing to the malarial nature of these paroxysms, convinced me of their malarial origin, and as I said before, the therapeutic test established the fact.

The third case was in the person of a child about a year old. This child did not come from an intensely malarial country, but lived near the coast, where a few cases of malaria occur every season. The symptoms were those of an irregular continued fever. Opportunity was not given for complete thermometric record, as the patient was brought to the office, and frequently it would be three or four days before the case was again under observation. The nervous symptoms were extremely marked, namely, evidence of an intense headache, screaming spells, extreme restlessness, tossing from side to side, boring the head into the pillow, semiconvulsive attacks, and insomnia. These symptoms gradually became progressively aggravated. Quinine in ordinary doses seemed to produce no effect, until finally a diagnosis was made of cerebral meningitis, and an unfavorable prognosis was given by two prominent physicians, of large clinical experience and diagnostic acumen. Subsequently larger doses of quinine were successful in bringing about a cure, proving the original diagnosis to have been incorrect, and that the trouble was malarial fever.

Such cases as these might be multiplied indefinitely, and illustrate the necessity of resorting to every method possible in order to make a correct diagnosis. It goes without saying that a careful microscopic examination of the blood by a competent observer should be made in every case where this method is practicable. In many instances, however, owing to the fact of the administration of previous doses of quinine, and the want of a well trained microscopist, this most certain method is not available, and the physician has to depend upon methodical study of the clinical events, including a careful thermometric record, and when he cannot see the case frequently enough, the patient should be furnished with a thermometer and the attendant taught how to use it, in order that this record may be made. By this means alone, in many instances, the diagnosis can be made. The appearance of the tongue is a symptom which is often neglected. In my opinion, the presence of what is called the "malarial tongue"—namely, when that organ is large, somewhat edematous, coated with whitish or yellowish fur, indented by the teeth—is very strongly indicative of malaria. The evidence of congestion of the stomach, liver, spleen, and intestines, viz., pain, tenderness upon pressure, swelling, and impaired digestion, are also suggestive symptoms, as there is no other disease in which the destruction of the red corpuscles occurs with such rapidity. The combination of those symptoms due to anemia and those due to the impaired functions of the abdominal secretory organs, producing a muddy, pallid complexion, are extremely significant that malaria is the cause. It is hardly possible to overestimate the importance of a careful observation and study of the case, in order that a correct diagnosis may be made, especially when the case has assumed a pernicious form. There is no other disease in which the treatment is more important and where the proper remedy will accomplish such good results, or where a failure to adopt the same may end in unnecessary fatality. Fortunately the majority of diseases will proceed to a successful termination to a great extent regardless of the treatment, and the

physician's duty could rather be described by the word *care* in place of *cure*. But this is not the case with the malarial diseases, especially where the symptoms have assumed a malignant form. Many valuable lives have been lost because the physician failed to recognize the disease and did not resort in time to the proper treatment.

The discovery of the parasitic origin of paludal fever made by M. Laveran at the close of the year 1880, and the subsequent discovery that infection was conveyed by the Anopheles mosquito, in 1898, marks one of the most important epochs in the history of medicine. The announcement of M. Laveran's discovery, made at the French Academy of Science by Professor Bouchard, is so interesting that I may be excused for quoting it.

"The commission," he says, "by a unanimous vote bestowed the Breant prize on M. A. Laveran, professor in the School of Val De Grace, for his discovery of the hematozoön of paludism. This discovery, which was made ten years ago, has been verified by observers of the most different views in almost every country where intermittent fevers prevail. The parasite, which is the pathogenic agent of an endemic the most ancient, the most extensive, and the most serious of all that scourge humanity, differs fundamentally from the parasites which are at present known of other infectious diseases. It is at least the first example of a disease being caused in man by a sporozoön. No one to-day will support the ideas formerly held, which attributed to palustral disease various forms of algæ or bacteria. The discovery of M. Laveran comprises the whole pathogenesis of fever; it may be said that it has changed the pathological study of this disease. In fact the characteristic pigment of the lesions of the palustral infections is produced by the parasite, and is contained in the parasite itself."

The subsequent studies of Manson, Ross, Grassi, Bastianelli, and others upon the development of the parasites in the mosquito of the genus Anopheles, in 1898, "proving that mosquitoes take the parasites from man and inoculate man with it again," the nature of the parasite and its mode of conveyance, having been established, the treatment of paludal fevers has been simplified and demonstrated beyond reasonable doubt. The agent that was so long used empirically is now known to cure by its destructive action upon the parasite, and because the parasites, acting upon the blood, destroy the red corpuscles, it is necessary that the cinchona salts should reach the blood. When from any cause absorption does not take place, the remedy is powerless to produce its results. The failure to bear this fundamental fact in mind and act in accordance therewith results in failure to arrest the paroxysms. Acknowledgment of the foregoing facts resolves the problem of the treatment of malarial fever into three fundamental indications, viz.: (1) the administration of some of the salts of cinchona (quinine being the most powerful) in such doses, at such times, and by such methods as will be followed by absorption and destruction of the malarial parasites; (2) measures to prevent reinfection; (3) reconstruction of the blood, and restoration of the resisting powers of the individual.

As regards the use of quinine in the treatment of malarial fever, it is an interesting fact to know that long before the recent establishment of the causative influence of the malarial parasite, and the explanation of the *modus operandi* of the salts of cinchona, the clinical experience of the practitioner of years gone by had established practically the same rules for the administration of quinine salts as have since been formulated. In reading over the treatment as laid down in some of the older books, the following points have been given special emphasis: (1) The necessity of administering this remedy after the subsidence of the paroxysms; (2) of giving it in large doses; (3) of giving it in solution with the addition of some of the strong acids, some of the authorities advising the use of one large dose of quinine (say about 15 to 30 grains) immediately after the sweating stage; (4) of resorting to a change of climate in chronic cases; (5) the use, in many cases, of an emetic; (6) the use of mercurial purgatives; (7) the use of much larger doses of quinine than ordinary in the treatment of pernicious cases; and (8) the necessity of stimulative measures to bring about a reaction in the cold stage of pernicious forms.

The rules given by Marchiafava and Bignami, which take into account not only the experience of older practitioners, but

the results of the investigation before and since the parasitic cause, are briefly as follows:

"In the double tertian, and in the triple, and even in the double quartan, the indications are properly met when quinine is given in the dose of 15 to 18 grains, during the period of apyrexia, in such a manner that the largest dose shall be administered three or four hours before the attack. The same dose is repeated three or four days following, and in order to avoid relapses, it should be repeated every six days for a month or more."

The explanation of the great efficacy of quinine when given just before the attack is to be found in the fact that its action is displayed most powerfully when the young parasites are free in the blood, and therefore most easily affected by the remedy.

"In the simple tertian and quartan, and also in the double quartan, especially in recent infections, it will be found useful to give the same dose of quinine at the end of the attack and to repeat it six or four hours previous to the hour at which the other attacks usually began. The first administration at the end of the attack is justified by the knowledge of the fact that quinine also acts upon the young endoglobular parasites, especially those of the tertian; and that when the drug is given during this period of the life cycle of the parasites, although it may not prevent the attack, it will at least make it milder, shorter, and even abortive in its type. This is an advantage not to be despised. The further treatment of simple and double quartan and of simple tertian is the same as that of the more complex types. . . . In estivo-autumnal fevers, whether the tertian or quotidian, if the symptoms or the condition of the parasite do not demand an immediate administration of quinine, it should be given toward the end of the attack in a large dose, 1.5 or even 2 gm., the same dose to be repeated for three or four consecutive days. Since the periods of apyrexia interposed between the attacks in the summer-autumn tertian and quotidian are short, the first administration of quinine should be during the few hours preceding the expected attack. The administration of the medicine on the succeeding days is for the purpose of preventing further attacks; and to prevent relapses the same treatment is followed as in the other types of fever—that is to say, a dose of 1.2 gm. of quinine is given every six days for several weeks.

"In fevers with pernicious symptoms, and in cases in which the condition of the parasites gives warning of a pernicious attack, quinine should be immediately given in a 30-grain dose by hypodermic injection (in the other fevers, unless the condition of the digestive tract forbid, it is administered by the mouth). This initial dose is followed at intervals of from six to eight hours by doses of 1 gm. or less, according to the course of the fever. Subsequent treatment directed to the prevention of the relapses is the same as in other forms of the infection. It has been held that we should wait until the fever subsides before giving quinine; but although that might be proper in the simple fevers, in pernicious infection the remedy should be given as soon as possible, for to await the period of apyrexia, especially in prolonged attacks and in subcontinuous forms, would be to run the chance of being too late."

Quoting again from Marchiafava in regard to the relapses he says: "Relapses, as we know, are due to the fact that the parasites which have survived the spontaneous recovery, or the cure due to the quinine, continue to multiply until they become sufficiently numerous to produce the fever. Now small daily doses of 3 to 3¼ grains will not prevent the relapse, just as they will not check the attack; while a large dose given at intervals of several days, and preferably within a few hours of or at the time when the attack used to appear, will interrupt the development of the parasitic cycle which is preparing to bring about another attack. Indeed, it is presumable that about the same amount of quinine in the blood is necessary to arrest the life of the parasites, whether these be few in number or whether there be enough of them to cause fever. Quinine then should be administered at the right time and in the proper doses taken within a brief period; at the right time, because its greatest activities are developed just when the parasites are the most vulnerable; in certain dosage, and all within a brief period, because if the amount is insufficient, or if it is sufficient but is broken up into small doses taken at too long intervals, we shall not

obtain the concentration of the remedy in the blood necessary to the destruction of the parasites. Moreover, when quinine is taken without regularity in insufficient doses and at too long intervals, the fever becomes irregular and even rebellious to regular treatment instituted later, as if the parasites had become used to the action of the quinine." He goes on to explain that where quinine is taken in this irregular manner, and insufficient doses without medical guidance, is the explanation of the so frequent occurrence of pernicious and obstinate fevers.

If I were to attempt to criticize this outline of the treatment of malaria as given by Marchiafava and Bignami, it would be rather on the insufficiency of details in regard to the use of other remedies. For example, nothing is said in regard to the use of calomel or emetics, and too little attention is given to the use of iron, arsenic, regulation of the diet, measures for overcoming constipation, protection against subsequent infections, and other measures of very great importance. Incidentally it is mentioned that laxatives may be useful in certain cases, but nowhere are mercurials spoken of for that purpose. I am sure it is the experience of a large number of physicians in the United States, who have malaria to treat, that calomel ranks next to the salts of cinchona as a remedy in most all forms of malarial fever, and for the following reasons: A pathological condition which is almost always present is a passive congestion of the abdominal viscera, resulting in impaired secretion, imperfect absorption, frequently nausea, vomiting, diarrhea, constipation, imperfect digestion and assimilation; in fact, a host of symptoms due to impaired functions of the digestive organs and autointoxication resulting in diminished resisting powers, and frequently preventing the action of quinine by interfering with its absorption. Illustrating the frequency with which quinine is not absorbed from the stomach in malarial cases, and the importance of knowing that the absorption has taken place before relying upon the therapeutic test, I beg to quote briefly from a report of mine on enteric and other fevers:

"Referring again to the importance of quinine as a therapeutic test, one fact should be borne in mind, viz., that in order that the test may apply, it is essential that thorough cinchonism should be produced. The stomach may be in such an irritable condition that the quinine may at once be rejected, or even when retained absorption does not occur, for though the patient may vomit frequently and eject large quantities of fluid, yet the stomach may contain an astonishing amount.

"A case of pernicious malarial fever of the hematuric variety occurring in my service last summer illustrates this fact. The patient was nearly moribund when he entered the hospital. The microscope revealed at once the pernicious character of the fever. Excessive thirst was present, though large quantities of water were drunk, and vomiting was almost incessant. Hypodermic medication was resorted to, but the patient was too far gone to be saved. The autopsy revealed the utter futility of depending upon the stomach as an avenue for the introduction of medicine in such cases. In spite of the repeated and profuse vomiting, the stomach contained nearly two quarts of greenish, acrid fluid. What good is there in pouring quinine into such a receptacle? Here we have an explanation of the failure of quinine in many cases; it never reaches the blood, where its work is to be done, either being ejected from the stomach or remaining in it unabsorbed. What is the remedy for this condition? The case may be an urgent one. We have no time to wait until the stomach can be got into a condition where absorption is possible. Repeated emesis is, as we have seen, no sign of an empty stomach; thorough emptying and washing out of the stomach would improve the condition, but still irritability and vomiting may continue. The remedy is complete cinchonism, destruction of the malarial organisms and prevention of their reproduction by the hypodermic injection of quinine, subcutaneous or intravenous as the emergency of the case may demand. The armamentarium of no physician who practices in a malarial district is complete without a hypodermic syringe and some preparation of quinine fit for hypodermic use.

"The stomach in a vast majority of cases being the avenue for the introduction of quinine into the blood, we can see how important it is that this organ shall be in a condition to facilitate absorption. Unquestionably the failure to cure and the loss of life in pernicious cases has been

due in many instances to failure to bear this fact in mind; and all methods which will facilitate absorption are of paramount necessity."

In the quotation above I referred incidentally to the necessity of empyting the stomach by emetics, or of washing out that organ. There are many cases where these means are of value; hence the wisdom of the older practitioners of giving emetics, which treatment has to a great extent fallen into desuetude. The thorough emptying of the stomach of undigested food, or washing it out by means of the stomach tube, will help to place it in such a condition as to enable it to perform its functions of absorption. It goes without saying that in every case where malignancy is suspected, or known to be present, by microscopic examination of the blood, the physician should not wait to prepare the stomach for the administration of quinine by that organ, but should resort at once to hypodermic medication. In the meantime the stomach should be prepared by the above mentioned means and by the administration of mercurials. And here comes in the great value of calomel, which is the best preparation of mercury in such cases. Whether calomel acts upon the liver or not, we recognize the fact that this remedy is one of the best intestinal antiseptics; that it mildly and gently acts upon the entire alimentary canal, sweeping out its contents from the duodenum downward, relieves the headache, cleanses the tongue, and places the entire alimentary canal in a better condition for the performance of its functions. All of the evils of calomel, its drastic effects, when given in excessive doses, the danger of salivation, may be avoided by proper combination and dosage. In many cases very small doses, 1-6 to 1-2 grain, frequently repeated, will produce the desired effect, without producing nausea or any disagreeable symptoms. In fact doses of 1/10 grain, frequently repeated, is one of the best remedies we have to relieve nausea and vomiting. In most cases I have made it a habit of using larger doses than above mentioned, giving adults 2 grains every three hours until three doses are taken—in some instances giving as much as 5 grains at a dose, and in some, where the bowels are especially hard to move, I advise a combination with resin of podophyllum in about 1-4- or 1-3-grain doses. As to the time of the administration of calomel, it is not necessary to give it prior to the administration of quinine, or to wait for its action before giving the latter. It is a frequent practice with me to combine the calomel with the quinine in the first prescription; then when the next dose of quinine is to be given, the stomach is in a better condition to receive it so that absorption may take place. Of course, it is understood that each case should be judged upon its own merits, and the remedy given as the symptoms may indicate. The point to be emphasized is that calomel should not be relegated to the limbo of forgotten remedies, but in its own sphere, as indicated above, it is valuable in a large proportion of cases, and fulfils certain indications which could not be so well produced by any other remedy.

The rules above quoted from Marchiafava for the treatment of ordinary cases of malarial fever are sufficiently explicit and need not to be repeated. The fundamental principle involved is to obtain thorough cinchonization for the destruction of the parasites and to prevent their reproduction. When from any cause whatever the stomach is not available for that purpose, then hypodermic injection should be resorted to. It is unfortunate that most of the salts of quinine, on account of the free acids they contain, are apt to be irritant and are liable to produce inflammation and abscess. These evil results, however, are to be avoided by thorough asepsis, perfect solution of the quinine salts, and the use of those which are the least irritant, as the carbamide of quinine and urea, and the bisulphate or hydrochlorate. The dosage should be measured by the intensity of the infection. In most cases 10 to 15 grains, repeated at intervals of three to four hours, is sufficient.

Before speaking of preventive measures, I wish to say a few words in regard to the treatment of the paroxysm. The discomfort of the rigors can be most rapidly relieved by the hypodermic injection of ¼ grain of morphine with 1/100 grain of atropine, or the same thing can be accomplished by a hot mustard foot-bath, hot lemonade, and some of the coal-tar antipyretics. The latter reduces the temperature, relieves the headache, pains in the back, and other discomforts. In those

cases where the temperature is high, the subsidence of the fever may be hastened by the use of cold sponging or the graduated cold bath and ice-cap to the head. The patient should be kept under the influence of the quinine for several days. The evidence of the breaking of the paroxysms having been furnished, the return of the paroxysm should be anticipated by thorough cinchonization just prior to the next expected attack. In the meantime the patient should be placed upon reconstructive tonics, namely, iron, arsenic, and nux vomica. I shall not attempt to indicate the various preparations of iron or combinations of these different agents which may be used. A favorite prescription of mine is as follows:

℞ Acid arsenosi,
Strychninæ sulphatis, āā gr. j;
Chinoidin purificati, ℥ijss;
Ferri sulphat. exsiccat., ℥ss.

M. et div. in pil. No. xxx. Sig.: One to be taken three times a day after meals.

If there is any reason to suspect constipation, to this prescription may be added one grain of resin of podophyllum. There is no question that in many cases of malarial fever we must closely watch the elimination, and thus prevent the accumulation of effete materials which tend to reduce the resisting powers of the individual, rendering him more liable to relapse. Hence it is necessary in every case of malarial fever to closely watch the condition of the alimentary canal and see that it is kept in good condition. I have already spoken of the use of calomel for this purpose and of its unique power. Other purgatives or combinations are of great value. If there is any reason to suspect the stomach of not being in good condition for the absorption of capsules, the arsenic may be given in solution. For the prevention of the return of malarial fever and for the reconstruction of the blood, this remedy is invaluable and should be given in full doses, and continued for several weeks. Iron in some form—the ordinary tincture of the chloride, the dried sulphate, or some of the newer preparations—may be given in full doses.

It goes without saying that whenever possible the patient should be protected from the Anopheles mosquito by proper screening and the use of bars. In severe cases and those with a tendency to recurrence, the patient should if possible be removed to an uninfected locality.

As regards reconstruction of the blood and restoration of the patient's resisting powers, the measures I have already spoken of are sufficient for this purpose, to which should be added the careful regulation of all the functions of the body, the avoidance of unhygienic conditions and surroundings; the cold bath in the morning and a cup of hot coffee before getting up are both useful measures. Exposure to the hot sun, getting wet, overeating, and all dietetic errors should be avoided. Plain, simple, easily digested foods should be used.

And now a few words in regard to the treatment of pernicious cases. As previously mentioned, there are no circumstances where a physician is placed under greater responsibility than in the treatment of pernicious fever. Of course the main thing is to recognize what he has to deal with, and having done this the indications are to bring about reaction and produce thorough cinchonization, in order to destroy the parasites and prevent reproduction of successive colonies. There are few diseases more insidious than the algid forms of malarial fever. Every physician called upon to treat these cases should study their symptomatology in some of the old books, where the descriptions are more graphic than in the newer ones. However, on this phase of the subject I cannot dwell. A flagging circulation is the most appalling symptom, and the most powerful measures to restore it are urgently required. Hypodermic injections of atropine, strychnine, musk, and camphor are useful. A hot mustard bath, alternating with the cold douche, friction to the surface, and rubbing from the periphery toward the center are also of great value in assisting the capillary and venous circulation. Alcoholic stimulants in small doses are useful for the purpose of maintaining a failing heart, and if necessary they may be used hypodermically. In comatose cases, where the brain is the principal organ involved, similar measures are useful.

The important thing is to recognize the milder manifestations, the disposition to stupor and sleep, which comes on periodically and is the forerunner of the more dangerous coma. Prompt cinchonism will often avert the latter, and a well ad-

vanced coma can be overcome by hot mustard foot-baths, wrapping the patient in blankets wrung out of hot water, cold applications to the head, and cold douches.

In regard to the malarial hemoglobinuria, and the vexed question of the administration of quinine in such cases, I shall have very little to say, as this portion of the subject will receive attention from two of the gentlemen to take part in the discussion. I shall only express the opinion that the evidence to me is conclusive that under certain circumstances quinine should not be used in these cases, as a single dose is capable of bringing about a condition of hematuria. It will not do to dogmatize by saying this is a form of malaria and therefore quinine should be used. A matter frequently overlooked in the treatment of these cases is that many of them are of uremic origin, and should receive treatment directed to that end, namely, free elimination from the bowels and the skin, avoidance of stimulating diuretics, which would only have the effect of increasing the congestion of the kidneys and embarrassing their functions. The medication in these cases has to be largely hypodermic, as the stomach is so often irritable and unable to retain anything which may be introduced into it.

In conclusion I wish to say a few words in regard to the treatment of the estivo-autumnal types of fever. There are several varieties of this type requiring different measures of treatment. The so-called continued malarial fever, of which Case 1 mentioned above is an example, is not infrequently met with. Where the fever is of a low type and the symptoms are so often obscure, it is only by a very careful use of the remedies hereinbefore mentioned, with a careful and systematic use of all the measures to restore functional activity of the secretory organs of the alimentary canal, and protection from the infected mosquito, that a cure will ultimately be brought about. In regard to the ardent remittent fevers so graphically described in the older text-books, in my opinion such forms are not as prevalent as formerly. At the most I can recall but few examples, after having had a long hospital experience, and having patients from neighboring river bottoms of Texas, from South America, and from Africa. There is no doubt that many cases formerly diagnosticated as malarial remittent fever, which resisted the action of quinine, were really cases of typhoid fever. Malarial cases as a rule will yield to thorough cinchonization. Fevers persisting in spite of thorough systematic use of quinine are to be regarded with suspicion. In treating the genuine malarial remittent, in addition to the requisite cinchonization, refrigerant methods are useful. The use of coal-tar antipyretics, in appropriate doses, cold sponging, the cold pack, the cold bath, and ice-cap to the head are all helpful measures. In all of these cases there is nearly always a very coated tongue, foul breath, constipation, and other evidences of impaired secretion of the alimentary canal. Such cases require the use of calomel, of course avoiding excessive purgation, or any of the evil effects of this remedy. That careful nursing and the regulation of the diet should be obtained goes without saying.

SUBSTITUTES FOR QUININE IN THE TREATMENT OF MALARIAL FEVER.

By John T. Moore, M.D.,
Galveston, Tex.

In entering upon the discussion of substitutes for quinine and other derivatives of cinchona and their various combinations with other agents, I do not wish to be understood as counting them superior or even equal to quinine. Quinine is a specific drug in its action upon the plasmodium of malaria, and there are but few instances in which I would even suggest a substitute. There are quite a number of drugs that I would consider a distinct aid in the treatment of malarial infection, but I know of but one drug in addition to quinine that is distinctly parasiticidal in its action upon the plasmodium, and that is methylene blue. There is, however, one other drug which should be mentioned—arsenic—its value in the treatment of malaria being so thoroughly established.

Guttmann and Ehrlich in 1891-1892 were led to the use of blue from observing that methylene blue not only stained the parasites in fresh blood, but that it rapidly destroyed their movement. They successfully treated several cases with this drug. Others soon began its use, and later quite a number of observers came out in testimony of its value, among whom may be

mentioned Thayer, Parewiski, Sanchwick, and others.

In 1902, in order to determine something of its value, Dr. Allison and myself studied twenty cases of malaria, giving alternate cases methylene blue and quinine. Our conclusions were as follows:

1. Methylene blue will destroy malarial parasites in many cases, but is less certain than quinine.

2. Methylene blue is probably most valuable in chronic cases, but has no advantage over quinine.

3. The effects of methylene blue are ordinarily more unpleasant than quinine.

4. It is useful in cases that cannot take quinine on account of some idiosyncrasy to it. Its use in cases of pregnancy is undetermined.

5. It is probably valuable in treating hematuric and hemoglobinuric fevers on account of its diuretic action; this has yet to be determined. We have had no chance to test its use in such cases.

6. We believe that quinine is quicker and much more certain, and would rely upon it rather than upon methylene blue.

Where there is a known idiosyncrasy to quinine, methylene blue, medicinally pure, should be given in doses of 3 to 5 grains every four to six hours, in a capsule, combined with 1 to 2 grains of powdered nutmeg. Ordinarily there will be no unpleasant features, but in some cases there is a burning on micturition, and now and then nausea and headaches.

Methylene blue acts more certainly in chronic forms of malaria than in the acute tertian and quartan fevers. Iwanoff (*Deutsche medicinische Wochenschrift*, 1901) found that methylene blue acted upon the protoplasm of the young tertian parasites, but not upon the nucleus or chromatin of the older forms of parasites.

I have not yet had an opportunity to test the efficacy of methylene blue in hematuria and hemoglobinuria, but would be disposed to give it a thorough trial should the opportunity arise. Theoretically it ought to be of value, unless methylene blue is too active as a diuretic.

Methylene blue is thought to be a safer remedy in cases of pregnant women, but here again there is room for doubt, as De Blasi, of Italy, claims that it causes painful contractions of the uterus in pregnant women.

In neuralgias, especially those of the malarial origin, methylene blue is very valuable, and I am sure that in a case of neuritis it would act well.

In conclusion, I speak of arsenic, a drug which is known to be of great service in the treatment of chronic malaria, either separately or in combination with quinine or methylene blue. I have been in the habit of using Fowler's solution almost exclusively, beginning with a small dose, say about 2 to 5 minims, and increasing it gradually until there is noticed a slight puffiness of the lower eyelid, and then stopping for a few days. It should be taken up in three or four days, and given in the same way. In giving arsenic for a long period one must remember that poisoning may occur from its administration. I think it better to combine arsenic and iron with quinine in the treatment of chronic cases of malaria and in the malarial cachexias.

THE TREATMENT OF MALARIAL HEMOGLOBINURIA WITH QUININE.

By J. W. McLaughlin, M.D.,
Galveston, Tex.

The conflicting and often opposing results which physicians of equal experience and accuracy of observation have obtained from quinine salts in the treatment of malarial hemoglobinuria cannot possibly be the result of faulty observation. I cannot conceive how a large number of watchful, intelligent observers in different districts, and different countries, can be in error when they say that they have successfully treated hundreds of cases of malarial hemoglobinuria with quinine, and that they have obtained only beneficial results from its use. On the other hand, it is impossible to doubt the accuracy of observation or the correctness of judgment of physicians, equal to the former in intelligence, in professional learning, and in experience, who state from personal observation that the effects of quinine salts in malarial hematuria are harmful to the patient, even jeopardize his life, and usually, some observers say always, increase the bloody urine, if already existing, or bring it on if absent when the quinine was given. In the face of such conflicting evidence the judicial observer is forced to believe that both sides are

partly right, and both necessarily are partly wrong; that there is a condition or phase of the disease curable by quinine, and a condition or phase of the disease in which quinine is harmful.

The name malarial hemoglobinuria implies that the disease is a type of malarial fever, and that its essential cause is one or more species of the malarial parasite, and as a matter of fact the parasite, usually but not invariably the estivo-autumnal variety, has been found in the blood of the living, or in the spleen or the bone-marrow of the dead from the disease. Koch, however, in his investigations in the German colonies, in Africa, claimed that the malarial parasite could not be found in a large majority of the numerous cases he examined. An inquiry into the history and geographical distribution of malarial hemoglobinuria reveals facts that are seemingly against the claim of its malarial origin. I will not occupy time by going into historical details of the subject, but will select for illustration a few examples. The two diseases, malaria and hemoglobinuria, differ in geographical distribution; the first is wide-spread, while the latter is peculiarly limited in distribution. It is found in Africa, on the east and west coast, the Congo, Madagascar, and Sierra Leone, but has never been known in Algeria, says Laveran, where grave forms of malaria abound. It is found in French Guiana, Venezuela, the West India islands, and Cuba, but is practically unknown in Brazil, and is of rare occurrence in the Philippine Islands. It prevails in Greece, Sicily, and in Central Italy, but is not known in the Roman Campagna, the home of pernicious malaria. In our own country, malarial fevers, mild and severe, have prevailed since the first settlement, and quinine has been extensively used in the treatment. But malarial hematuria is a comparatively recent disease. It was not known, or but rarely met with, until since the close of the Civil War. I saw the disease soon after its first appearance in the settlements along the Colorado River, near La Grange, in the years of 1868-9; and I wish to say, by the way, that I successfully treated a large number of cases with full doses of quinine.

The historical facts which I have related bear me out in the belief that the essential cause of malarial hemoglobinuria is an unknown microörganism, and that the malarial parasite occupies the subordinate position, although a very common and perhaps necessary one, of associate. It is indeed probable that the syndrome of hemoglobinuria is the clinical expression of infection by two distinct species of microörganisms, of which the parasite of malaria is one.

Hemoglobinuric fever has been found in association with the tertian parasites, and the type of fever and the occurrence of hemoglobinuria have been distinctly intermittent. In these cases quinine is always indicated, and will arrest both the fever and the hemoglobinuria.

Hemoglobinuria has also been found in association with the quartan parasite, and the fever and hemoglobinuria occur together in the quartan paroxysms. In these cases also quinine will promptly arrest both the fever and the hemoglobinuria.

In a large majority of cases of hemoglobinuria the associated malarial parasite is of the estivo-autumnal variety, and the fever and hemoglobinuria are both periodical, with short and often indistinct remissions. When in these cases the hemoglobinuria develops during the height of the infection, and parasites are found in the blood, quinine in my opinion is the remedy. But when, in the estivo-autumnal infections with hemoglobinuria, the malarial infection has spent its force and the parasites have disappeared from the blood, but the hemoglobinuric fever continues—a not infrequent condition—quinine is not indicated, and its administration may be harmful to the patient and prolong the hemorrhage from the kidneys.

THE USE OF QUININE IN MALARIAL HEMOGLOBINURIA.

By W. Shropshire, M.D.,
Yoakum, Texas.

In discussing the use of quinine in the estivo-autumnal fevers, we have to consider, first, Is the remedy efficacious in this fever—in other words, will it kill the estivo-autumnal parasites? and secondly, What contraindications are there to its administration?

Taking up the first portion of the subject, I do not hesitate to say without the fear of even contradiction that quinine

properly administered, so that it gets into the general circulation in adequate doses, will kill the estivo-autumnal parasite. It has done so in countless thousands of cases during the past three hundred years, and has been accorded that property ever since the parasite has been known by all thoughtful and competent observers, hence this portion of the consideration resolves itself into what is an adequate dose, and how it can be put into the general circulation. An adequate dose for the average adult is by most physicians estimated as not less than 30 grains per day, whether given in small doses frequently repeated, or in a single dose. There is some question as to getting the quinine into the blood, as in this disease the liver is without exception so congested that the portal circulation is practically *nil.* Consequently, the absorbent power of the stomach is abolished, and even if not entirely so, the difficulty of keeping the quinine on the stomach in this condition, when almost incessant vomiting is the rule, makes that route for the introduction of quinine impracticable; hence it remains for us to give the drug hypodermically or intravenously, which method has given by far the least death-rate in the few hundred cases that I have been able to get records of.

Taking up the second division of our consideration, that of contraindications, I will say that but two have ever been offered that merit any consideration. The first is that quinine irritates the already congested kidneys, thereby aggravating the condition. This is so strongly controverted by the facts that quinine does not do so in cases of malarial nephritis, where it promptly relieves the symptoms of kidney inflammation, and in other forms of the trouble where albuminuria is present, that further discussion of it is deemed a waste of valuable time. The second supposed contraindication, that maintained by Dr. Krauss, of Memphis, and some of his collaborators, needs some further observation to thoroughly refute it. It is that malaria places in the blood one of the elements necessary to form a poison that will produce hemolysis of the blood, and that quinine forms the complement of that element, thereby producing in the blood a poison that destroys it; and that the hemoglobinuria is the free hemoglobin excreted by the kidneys from the blood, after it has been separated from the blood cell by that poison and is free in the plasma. I do not for a moment believe that this position is correct, or that the condition is due to the entire separation of the hemoglobin from the cells of the blood current. I am of the opinion that the cells are so weakened that they part with their coloring matter easily because of the malarial poison, and that in this form the particular point of congestion is the kidneys. Therefore the blood parts with its coloring matter, and we have a hemoglobinuria instead of hematuria. The cells, as it were, are filtered out from the coloring matter while it is carried off in the urine.

The fact is that in nearly all cases that have the disease, or condition, and have quinine administered hypodermically, or adequately, the coloring matter leaves the urine. A far greater percentage recover than where the quinine is withheld in the treatment of the condition.

THE TREATMENT OF MALARIA IN CHILDREN.

By S. C. Red, M.D.,
Houston, Texas.

In compliance with the request of Dr. West to say something "pointed and concise" on the treatment of children for malaria, I wish to say that I have prepared no formal paper, as the others seem to have done, but desire to give my individual experience during fifteen years of practice. I do not claim to be a specialist in diseases for children, and do not see why he called upon me, unless it should be that all general practitioners are considered specialists in diseases of women and children. In such a sense only might I be considered a specialist in that line.

It is not my intention to make any distinction between infancy and childhood, the treatment in each instance being the same. The first indication is a purgative. For this purpose I have been in the habit of using mild chloride of mercury, rubbed up with sugar of milk, or bicarbonate of sodium. This comes as near being an ideal purgative in such cases as I know of, it being both a laxative, diuretic, and antiseptic at the same time. The specific, which you all know, in such cases is some alkaloid of calisaya bark. The one I have been in the habit of using is sulphate of cinchonidia, for the reason that it produces

less pronounced impression upon the nervous system, gives rise to less tinnitus, less giddiness, and less tachycardia. The method of administering it is sometimes a matter of considerable concern. In malarial fever the stomach is sometimes very sensitive and readily expels anything placed therein. Syrups particularly seem in some instances to disagree, and as almost all the tasteless preparations of calisaya salts have for their basis syrups, we are frequently forced to use something else. Capsules in many cases are impracticable. We then have to resort to inunctions. For this purpose I have found an inunction of cinchonidia sulphate and lanolin the most satisfactory. Lanolin is readily absorbed through the skin, and therefore absorbs and carries the salt with it. By this method there is no doubt of getting the constitutional effect. In particularly stubborn cases resort has to be made to placing dry cinchona salt upon the tongue. As an adjunct to this special treatment, cold baths and a general nutritious diet is about all that is required. Tonics are not of any special consequence in the after-treatment of the disease, for the reason that the recuperative powers of children are naturally very great. For that purpose I have often prescribed elixir of calisaya.

The foregoing is a brief outline of what I have been doing for malaria in children.

RECENT PROGRESS IN THE DIETETIC TREATMENT OF TYPHOID FEVER.

At a recent meeting of the Medical Society of the State of New York a number of valuable papers on this disease were presented, and the *Medical News* of October 24, 1903, has summarized some of the views in the following words, which we are glad to publish because we have repeatedly expressed similar opinions in our editorial columns. With regard to treatment, the most important feature of progressive therapeutics is a growing tendency not to limit the diet of typhoid fever patients as exclusively to milk as has been hitherto the case. As has been frequently pointed out, while milk is a liquid food when swallowed, it does not remain liquid in the stomach, but is at once coagulated into masses which, under certain circumstances, are quite hard. As a matter of fact, patients fed exclusively on milk pass a considerable amount of fecal material in a semisolid condition. The addition of cereals to the milk usually is very grateful to the patient and does not seem to add any special danger of producing complications. Not so long ago the cereals were thought to be likely to produce fermentative conditions in the intestinal tract which led to discomforting tympanites. The practically universal experience of prominent specialists in children's diseases, however, seems to show that on the contrary the addition of cereals to the milk in the dietary of children lessens the tendency to fermentation, and that somehow the acids produced during the course of cereal digestion have an antiseptic effect and actually lessen the tendency to gas formation. This has now become the generally accepted teaching in pediatrics, and on the strength of it milk, for infant feeding, is nearly always diluted with barley water or some other cereal solution that does not allow its coagulation into solid lumps in the stomach. It would seem only proper then that the general practitioner should take advantage of this important dietetic principle in the care of his typhoid fever patients.

There is no doubt, moreover, that certain meat preparations, which are very much craved by typhoid fever patients and which may be administered in the form of soups, are not only likely to add important elements almost necessary for the lowered nutrition of the patient, but form also very valuable adjuncts for the digestion of food materials in such a way as not to inconvenience the patient. A mixed diet is relished, and its digestion is accompanied by less subjective discomfort. Under these circumstances it is not so difficult to keep vitality almost up to the normal standard and thus lessen the danger of complications, relapses, and sequelæ. It is now generally recognized that the lowered resistive vitality consequent upon an exclusive milk diet in a patient who does not digest milk well rather predisposes to hemorrhage and perforation, both of which are reported in many cases where nothing but milk was exhibited from an early stage of the disease. With any diet the physician must take it as a rule to see the stools every day and judge of their possible irritating influence by actual inspection rather than from any theoretical considerations as to the harmlessness of a special diet.

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Leading Articles.

THE SYMPOSIUM ON MALARIAL FEVER.

We publish in this issue of the THERAPEUTIC GAZETTE an interesting symposium upon the treatment of remittent and intermittent and malarial fever. These articles are written by men in the South and Southwest who are leaders in medical thought in their districts and who have had large experience in the treatment of these infections. For these reasons they are competent to describe the advantages which can be obtained by employment of plans of treatment in addition to the use of quinine, although quinine must of course continue to be the chief remedy. Much can be done at times to modify the severity of the symptoms presented by patients suffering from malarial infection aside from the direct specific influence which is exerted by quinine, and these papers help us to an understanding of these methods of relief.

RENAL DECAPSULATION AS A REMEDY FOR BRIGHT'S DISEASE, FROM THE MEDICAL STANDPOINT.

Attention has already been called in these pages to the suggestion that cases of Bright's disease, so-called, may be favorably modified by performing an operation which consists in exposing the kidney and stripping it of its sheath. Eight years ago Mr. Reginald Harrison, of England, reported some cases of albuminuria in which he had relieved tension of the kidney by incising its capsule, and more recently Edebohls has, as is well known, popularized this operation, and recommended that the capsule should be entirely removed. He has reported a series of cases numbering 51, of which 29 had chronic interstitial nephritis, 14 chronic diffuse nephritis, and 8 parenchymatous nephritis, and claims that in a considerable number of these cases the patient was distinctly improved by the operation. Death occurred in 14 at periods varying from two months to eight years after operation, the average duration of life being one year and eight months after operation. He concludes that 39 of them were more or less benefited, and 19 completely cured.

Our attention has once more been called to this important subject by an article of Dr. James Tyson which is published in the *New York Medical Journal* of October 10, 1903, in which he reports the case of a girl of nine years suffering from chronic parenchymatous nephritis, following scarlet fever which had occurred five years before he saw her. The child was very dropsical, the heart's action was feeble, the urine was heavily loaded with albumin, and microscopic examination revealed the fact that it contained granular casts and fatty renal cells. She had 45 per cent of hemoglobin. Notwithstanding the fact that she was skilfully treated with cardiac tonics and by purgatives and hot packs, she did not materially improve, and her abdomen was tapped on more than one occasion for the relief of ascites, which was associated with her general dropsy. The patient was operated upon twice, it being considered unwise to strip both kidneys at the same operation. After the first operation the quantity of urine was enormously increased, the wound healed kindly, and the condition of the patient somewhat improved. Two months

after the first operation the second kidney was attacked, and the child again promptly recovered from the operation, the albumin diminished, but the casts apparently were not materially altered in number or character. At the time that he reports the case the albumin was still present in the proportion of one-third volume, and a few hyaline casts were to be found in the urine, but more important than all, the patient seemed to be "the picture of health."

In our Progress columns of this issue will be found what Dr. Tyson has to say in regard to the pathological and physiological bearing of this operation. We confess that it is one which has never appealed to us, and notwithstanding the good results which we have quoted, we are inclined to doubt whether it will ever have wide acceptance on the part of the profession. Undoubtedly cases will arise in which congestion of the kidney may seriously impair its functional activity, and under these circumstances it is conceivable that slitting or removing the capsule may relieve the pressure upon the secreting portion of the organ, and permit it to carry out its normal function. But if we mistake not, the object of the capsule of the kidney is to support its parenchyma and blood-vessels whenever there is a tendency to undue stress upon them, and we fail to see how removing the capsule can more than temporarily relieve the pressure upon the secreting tubules and tufts. On the contrary, we should imagine that under these circumstances a far too great supply of blood in the kidney may ensue, for after all the capsule of the kidney bears to its blood-pressure somewhat the relation that is borne by the fibrous sheath of an artery. Again, it does not seem to us that this operation is based upon a complete understanding of the pathological processes which are present in chronic renal disease. Delafield, who, perhaps, has done more work in regard to the pathology of the kidney than any other investigator in this country, well points out that the changes in the kidneys which may be properly considered inflammatory are either exudative or productive, or both, and are associated with degenerative processes. So far as we know, there is no evidence to prove that these exudative or productive processes are in any way the result of undue confinement of the kidney within its sheath, and the degenerative processes which exist side by side with these inflammatory changes are certainly not solely due to circulatory change. Who of us can examine microscopically the condition of the kidney in chronic diffuse nephritis and imagine for a moment that relieving pressure by stripping the capsule can materially improve the action of the tissues involved? For it is evident, under these circumstances, that the difficulty is not one of circulatory failure in the kidney, but that the secreting epithelium has undergone albuminous degeneration or other changes which prevent it from carrying out its normal function. Further, an examination of the blood-vessels of the kidney often shows a chronic obliterating endarteritis. All these changes are changes which mean destruction. None of them seem to us to offer conditions which can be benefited materially by the relief of pressure, and if an increased supply of blood enters the kidney by reason of the capsule being removed, it is doubtful to our minds whether the pathological process does not proceed eventually as rapidly as before the operation was undertaken. We think also that the fact must not be forgotten that in many, if not all, cases of chronic nephritis of either form there is associated with the renal change grave alteration in the cardiovascular system. It is true that some pathologists have expressed the opinion that these cardiovascular alterations result from renal conditions, but on the other hand a number of equally prominent investigators have expressed the belief that the changes in the kidneys and in the heart and blood-vessels are part and parcel of the same pathological process, and if this is true a local renal operation cannot of course produce a cure.

Since the preceding paragraphs were written we have been much interested in reading the valuable contribution on this subject made by Dr. Guiteras to the *New York Medical Journal* of November 7 and 14, in which he has collected statistics concerning operations upon this class of cases in 120 instances. Dr. Guiteras reaches conclusions which we think are wise and conservative, and he throws a flood of light upon this question when he says: "Some patients recover and have perfect health for months or years after operation. Usually those whose cases are di-

agnosticated as chronic interstitial nephritis and movable kidney in which one kidney is operated upon." And again he says: "In a great many cases the edema persisted after the operation." Now, it is well known that patients suffering from chronic interstitial nephritis often live for a number of years, not rapidly succumbing as do cases of parenchymatous nephritis, and therefore it is perfectly possible that the preservation of life in these instances was part of the natural history of the disease, and not due to the operation itself, particularly when it is recorded that a great many patients showed "no improvement in the urine." The fact, too, that the best results have been obtained in cases of movable kidney indicates that it is the fixation of the kidney and the consequent readjustment of a normal renal circulation which is advantageous, rather than any effect exercised upon actual kidney disease.

In analyzing Guiteras's statistics it is seen that 16 per cent are reported as cured, 40 per cent improved, 11 per cent unimproved, and 33 per cent deaths. But it must be remembered that of the so-called 16 per cent which were cured, it is exceedingly doubtful whether all of them were suffering from true nephritis of the chronic type.

Death following the operation may arise from exhaustion, from uremic coma, from edema of the lungs, from acute dilatation of the heart, and from exacerbations of chronic nephritis due to the operation. Some patients had acute pyelitis after the operation.

Guiteras concludes very wisely that chronic nephritis should not be operated upon until medical treatment has proved of no avail. The most unfavorable cases for operation are those of diffuse nephritis. He also states that the operation for chronic Bright's which has proved least dangerous and which has shown the best result is nephropexy performed on a single movable kidney. He does not think that cases of general anasarca and "bad heart action" should be operated upon, and he also believes that where a marked destructive process is present in the kidneys as the result of nephritis the operation can only be a temporary cause of relief.

To the medical mind the conditions described by many of the surgeons who have operated upon these cases is certainly nebulous. They speak of the "edema of chronic interstitial nephritis," when we all know that this is the type of the disease in which edema does not commonly occur. It is evident that the same degree of skill which is recognized as essential in operative technique shall also be exercised in determining the exact character of the case which should be subjected to this radical plan of treatment, and until more definite statements are forthcoming to prove that so general a process as nephritis can be cured by stripping or incising the capsule we shall advise such patients against this procedure.

ARE THERE ANY DANGERS IN THE USE OF ANTIDIPHTHERITIC SERUM?

Occasionally we are in receipt of a communication inquiring as to whether it is possible for antidiphtheritic serum, if properly made, to produce symptoms sufficiently grave to make us regard this remedy with a degree of suspicion, and still more frequently we see articles or letters from medical practitioners published in journals in which the same question is asked or at least is brought before the profession. The answer under these circumstances is an unqualified negative. So far as we know there is no evidence to justify any member of the profession in considering that antitoxin ever does any real harm. It is true that occasionally disagreeable symptoms have followed its use, but there is no proof whatever that they have been due to the antitoxin. On the other hand, in a good many instances where the antitoxin has been suspected of being responsible, investigation has proved that the occurrence of disagreeable symptoms after its use has been a coincidence and possessed no real connection with the hypodermic administration of the serum.

Our attention has once more been called to this subject by an article entitled "The Accidents of Antidiphtheritic Serum and its Innocuousness," by Coldefy, of Paris, which is published in the *Revue de Thérapeutique* of September 15, 1903. Dr. Coldefy has contributed quite an exhaustive article upon this subject, and has searched through literature for reports of those cases in which disagreeable symp-

toms have followed the administration of this remedy. He recalls to our minds the fact that the 21-months-old son of Professor Langerhans, of Berlin, died suddenly after receiving an injection of antitoxin, but he also shows that there is no evidence whatever that the injection was responsible for the death; and we have been informed, although whether our information is correct or not we cannot say, that the autopsy in this case revealed the fact that suffocation had been produced by the lodgment of a foreign body in the larynx.

As an illustration of some of the cases which have been reported in which death has followed the injection of antitoxin, we may mention that of Moizard and Bouchard, in which a little girl of six years with sore throat received a dose of antitoxin, and six days afterward suffered from an eruption and died in convulsions. These reporters naturally conclude that in this instance the serum was not responsible for the fatal issue, but that toxemia caused death. Again, Variot has reported the case of a child which succumbed to hyperpyrexia forty-eight hours after the injection, the autopsy revealing no cause for the condition. In still another instance reported by Guinon and Rouffelange, a little girl of three years, who had white patches on her tonsils, received an injection, the temperature being high at the time and the pulse 160. The enlargement of the glands in the neck increased, the urine became albuminous, and an urticaria developed. Still another dose was given, and then a third. Notwithstanding this the condition of the child progressively became worse, the urine became loaded with albumin, and death ensued. Here, again, there is every reason to believe that the renal condition was responsible for the evil result, and that the antitoxin had nothing whatever to do with it. Other instances of a similar character in which the first impulse was to attribute the evil results to antitoxin, but in which more mature judgment showed that such a decision was unjustified, have been reported by Geffrier and Roset, by Freyman, and by a considerable number of other clinicians.

The view which should be taken in regard to this subject has already been expressed at the beginning of this editorial, and is well summed up in the opinion expressed by Voisin and Guinin at a meeting of the Paris Medical Society, when these authors, in discussing the employment of antidiphtheritic serum in the treatment of epileptic children suffering from diphtheria, arrived at the conclusion not only that it was a valuable curative agent, but that as a preventive for use in healthy children its efficiency is remarkable, and its innocuousness absolute.

There can be little doubt that while the profession is daily employing antidiphtheritic serum with a greater degree of confidence than ever before, it is not using it as a preventive measure to the extent which its value justifies. We believe that whenever an epidemic of the disease appears in a school, each pupil should receive from three to five hundred units with the idea of protecting the child from infection.

THE USE OF APOMORPHINE.

Graduates in medicine of twenty-five years ago are wont to consider apomorphine solely from the standpoint of a centric emetic, but as a matter of fact this drug was not before the attention of practitioners many years before it was employed with excellent results as a sedative expectorant in the early stages of bronchitis, when it was desired to aid in secretion, and when the physician was anxious to diminish excessive cough and irritability of the respiratory mucous membrane. Within the last two or three years several papers have appeared, in which practitioners of experience have recommended the employment of apomorphine in the treatment of acute alcoholism. They claim that the drug not only diminishes the desire for alcohol, but also acts as a nervous sedative, preventing the development of delirium tremens upon the withdrawal of the stimulant. They have also asserted that it does not generate a desire for hypnotics as does the use of morphine. It may be remembered that Douglass, of Boston, first employed this remedy to a considerable extent in the treatment of alcoholism, and stated that it relieved insomnia and diminished alcoholic craving. The alcohol is withdrawn from the patient gradually, care being taken at the

same time that he is nourished with easily digested or predigested foods.

We now have before us a paper by Bechet, which appears in the November issue of the *New Orleans Medical and Surgical Journal.* Bechet has employed apomorphine with, he claims, excellent results. He thinks that under some circumstances apomorphine acts as a circulatory depressant, and so he has always administered with it one-thirtieth of a grain of strychnine hypodermically. His method of administration consists in giving one-thirtieth of a grain of strychnine and one-thirtieth of a grain of apomorphine by means of the hypodermic needle, as frequently as every three hours. Rarely does this dose in his experience produce nausea and vomiting. In some instances he has found it necessary to employ as much as one-fifteenth of a grain.

REMOVAL OF THE TONSILS AS A PREVENTIVE OF DISEASE.

Increasing experience proves beyond all doubt that a considerable number of infections take place through the tonsil. Of these perhaps the most frequent is acute articular rheumatism, but it is a well known fact that other diseases, depending upon microörganisms for their existence, begin in the body after their germs have entered through the tonsillar tissue. Several years ago the late Dr. Frederick A. Packard published a paper of a clinical character in which he brought forward convincing evidence of these facts, and physicians should at the present time regard diseased or enlarged tonsils as a constant menace to the health of their possessor. In the *American Journal of the Medical Sciences* for November, 1903, Koplik, of New York, publishes a paper in which he points out that tuberculosis of the tonsils may occur, and that frequently the tonsils may act as a portal for tubercular infection. Primary tuberculosis of the tonsil is of course a very rare condition, but the bacillus tuberculosis, and the results of its presence, can often be found in the tonsils of tubercular patients, and even in the tonsils of those who may not be known to be tubercular. How frequently do practitioners of experience meet with children suffering with large cervical glands which in modern view are mostly tubercular in origin, and which are due in the majority of instances to the entrance of the tubercle bacillus through the respiratory, buccal, or tonsillar mucous membrane! And how frequently do we see children who have chronic hypertrophy of the tonsils, suffer from diphtheria, from ulcerated throat in scarlet fever, and from nasopharyngeal obstruction, which in the course of respiratory diseases often seriously interferes with their taking of sufficient air and nourishment!

OPERATIVE TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

A discussion on this important subject, over which the shadow of a dreadful past still hangs heavy, was opened by Semon (*British Medical Journal,* Oct. 31, 1903) with a reference to the tabulation of Foulis, presented in 1881, to the effect that out of twenty-five cases of total extirpation of the larynx thus far performed for malignant diseases, not one had been reported alive at the end of the first year after operation, and that of six cases of partial extirpation but one was alive fourteen months after the left half of the larynx had been removed. Of nineteen cases of cancer of the larynx which had been treated by thyrotomy until 1887, not less than sixteen local recurrences occurred either immediately after the operation or in a very few months afterward, and in one single case only was recurrence retarded for more than one year.

The reasons for these appalling results were dependent upon the fact that the methods of diagnosis were so crude, or at least so ill practiced, that the disease was not discovered until it had reached an incurable stage, and the technique of the operation was so imperfect that the immediate mortality from lung affections was shocking.

Semon states that there can be no doubt that it was the illness of the then Crown Prince of Germany and the discussion connected with it which led to a considerable improvement both in the diagnosis and in the operative treatment of malignant diseases of the larynx.

There are five different operative methods of dealing with malignant diseases in use at present, and since no internal medication is of the slightest value,

the therapeutic question is as to the selection of the method.

It need scarcely be stated that operation should be performed the moment diagnosis is made. The teaching to the effect that cancer at its onset, and even for a long time, is a local disease, is confirmed not only on scientific grounds, but by the results of actual clinical experience. The intrinsic cancerous affection—*i.e.*, that attacking the upper interior of the larynx from the ventricular bands downward—remains long a purely local affection, and shows very little tendency till the disease is much advanced to invade the neighboring lymphatic glands, while the extrinsic form of it invades the epiglottic folds, the arytenoid cartilages, epiglottis, and the posterior wall of the cricoid cartilage at a very early date. This is of extreme importance from a prognostic standpoint.

As to the intralaryngeal method of operation, saving in what are called splendid exceptions, Semon holds that it is absolutely unsuited for the radical extirpation of malignant growth, and that its employment in cases of this kind is absolutely irreconcilable with the doctrine that not only the tumor itself but an area of apparently healthy tissue in all directions around the new formation should be removed in order to make the operation radical. In some quite exceptional cases, such as when the disease begins at the tip of the epiglottis and is recognized while still quite limited to the peripheral part of that structure, removal of the whole epiglottis by means of the snare or knife from within may be legitimately adopted.

As to thyrotomy, this is applicable to all cases of intrinsic malignant disease in which the diagnosis is made at a time when the growth is not too extensive nor apparently too deeply infiltrated. Indeed, under such circumstances this constitutes an ideal procedure, Semon reporting twenty operations with nineteen recoveries, with two doubtful recurrences and one death from the operation. The vocal results are surprisingly good.

In order to get good results, the operation must be restricted to early stages of the disease, must be thorough, and must be supplemented by a partial laryngectomy if after opening the larynx it is found that the disease is so extensive as to require this.

Semon, after thyrotomy, immediately closes the larger upper part of the wound, and leaves the lower part open for two or three days until all danger of septic complication has passed.

Partial extirpation of the larynx does not offer any greater technical difficulties than thyrotomy. It is required usually because of a failure to make an early diagnosis. Only when the growths have actually invaded the cartilages will complete removal of the latter become indispensable.

Total extirpation of the larynx is, as a rule, required because of a failure to recognize the growth at an early stage when a more conservative operation might have been sufficient. Its dangers, Semon holds, are greatly lessened by what he calls the American method of shutting off completely the lower part of the trachea, by stitching it to the skin.

Subhyoid pharyngectomy is attended by a curious fatality which has not been sufficiently elucidated, but may be suitable for cases in which the disease starts from the epiglottis or from the arytenoepiglottidean fold.

Palliative tracheotomy is a measure required only in the most hopelessly advanced cases, in which it is obvious that no radical method can completely eradicate the disease.

As to the early diagnosis, on which the whole question of therapeutics hinges, Semon quotes Butlin to the effect that there are three classes of cases: the first, in which any and every one can make the diagnosis; the second, in which the better instructed and more experienced make it; the third, in which the conditions are so obscure that none can make it unless the larynx be opened. This being the case, and since errors are possible in determining the presence of benign or malignant growths occurring in the latter persons, whenever possible fragments of the suspicious growth should be removed from within and submitted to expert microscopic examination.

Semon believes, however, that the microscope should play the rôle of a helpmate and not that of an infallible arbiter, and that the clinical observer must have the courage of his own convictions to perform an exploratory thyrotomy in suspicious cases, even when the microscope

has given an unambiguous reply as to malignancy. Even after opening the larynx there may be doubt, and under such circumstances the growth should be treated as malignant.

Gluck, considering the question of operating for laryngeal growths, holds that the first object must be to save life, and next to leave the patient in such a condition that life so saved is worth living. He thus describes the operation suited to diffuse papilloma, some cases of syphilis, and circumscribed cancer of the vocal cords: (1) A low tracheotomy is done. (2) A median incision is made through skin and fascia, the sternal muscles are retracted, and the larynx is exposed. (3) The thyroid cartilage and cricothyroid membrane are divided in the middle line, and the two halves are retracted with hooks. (4) A solution of cocaine and antipyrin (5-per-cent), and carbolic acid (1-per cent), in distilled water, is applied to the interior of the larynx, and the growth is removed with scissors, knife, or thermocautery, and plugs of iodoform gauze are placed in the larynx and fixed with a few points of suture through the cartilage. (5) Between the fourth and sixth days the plugs are removed (under anesthesia). If necessary the suspected region is cauterized, and the wound is stitched up. (6) About the tenth day the sutures are removed, and the tracheal cannula. In the third week, when healing should be complete, the patient is allowed to speak.

He confirms Semon's admirable results, and says that he has patients who were operated upon fourteen years ago, who are able to lecture regularly.

As is the case with cancer in other regions the diagnosis is improving each year, not so much because of an improved technique as because of a wider knowledge of laryngeal examination and increased skill therein, and consequently surgical intervention gives a fair prospect of being radical.

POSTOPERATIVE LUNG COMPLICATIONS.

Perhaps one of the most potent arguments advanced against ether, and the one most effective in preventing its general use, is that incident to a widely accepted belief that it directly causes a congestion of the lungs and is indirectly responsible for inflammatory, hypostatic, and thrombotic pulmonary conditions which are so commonly observed after major operations, and particularly after those applied to the relief of intra-abdominal affections.

This doctrine as to the irritant effect of ether vapor upon the lungs, once stated, is hard to confute, and indeed it might ever remain a part of general medical belief but for the fact that following laparotomies under local anesthesia about as many lung complications have been observed as in ether cases, or even when chloroform was given. Thus Gottstein notes that of 114 laparotomies under cocaine anesthesia, there were 27 cases of lung complication, or about 15 per cent, while 119 abdominal sections performed under a general anesthetic gave only 7 cases of lung complication, or 6 per cent. Mikulicz, also quoted by Anderson (*Pacific Medical Journal,* November, 1903), notes 7.5 per cent of pneumonia and 3.4 mortality in 1000 cases of major operations under general anesthesia, while there were 12.8 per cent of pneumonia and 4.8 per cent of mortality in 273 celiotomies under local anesthesia.

These figures in themselves at once negative the idea that ether is either a predisposing or exciting factor in the causation of postoperative lung complications. Moreover, the statistics of the Presbyterian Hospital of New York show with equal conclusiveness that the risk of pneumonia following chloroform administration is two and one-half times greater than that from ether. These facts, Anderson states, are also borne out at St. Winifred's Hospital, San Francisco.

The causes of lung complications after operation are said by Gerulanos to be as follows:

1. The direct irritating action of the anesthetic on the respiratory mucous membrane, with hypersecretion. This is more marked in ether narcosis.

2. The toxic effect of the anesthetic on the blood-vessels, producing dilatation of the vessels, hyperemia, and edema of the lungs, with the usual secondary effect on the heart. This is present in both chloroform and ether, and, authorities seem to think, more marked in the latter. This condition favors hypostatic pneumonia, lowers the resistance of the lung tissue to infection, which may take place (*a*) by

inspiration, (*b*) by infected emboli, (*c*) by bacteria in the blood.

3. The inspiration of infected material from the secretions of the mouth and pharynx, or vomitus.

4. Infected or non-infected emboli from thrombosed vessels (usually veins) of the site of or in the neighborhood of the operation.

5. Chilling, fright, and shock from the operation, with or without hemorrhage, all lower the resistance of the patient and act as indirect factors in the production of the pneumonia. (Prolonged general narcosis, long exposure of the chest or peritoneal cavity reduce the temperature.)

6. A general weakness of the patient lowers the resistance and acts as a very important indirect factor.

7. The restriction of respiration, and especially of expectoration, by the pain of the abdominal wound or the tight bandage.

As to the direct irritating action of the vapor and the toxic effects, these are both greatly diminished by careful administration of the vapor and the local use of cocaine and adrenalin chloride. The dangers incident to the inspiration of infected material are to an extent obviated by the proper disinfection of the mouth and nose before the operation, this being especially required when suppurative lesions of these cavities exist.

Embolic pneumonia is a danger independent of the form of anesthesia used, and is probably more common than is supposed, since small emboli may cause almost no symptoms beyond a slight cough and expectoration, which may excite no comment. In the great majority of these cases the emboli are sterile and produce a focus of lessened resistance; when septic the condition is one of the utmost gravity.

As to the prophylaxis of these complications, perhaps the point of greatest importance is to secure the services of an experienced anesthetist, who will give the least quantity of the drug compatible with the proper relaxation of the patient. It is well, moreover, where possible, to substitute local for general anesthesia, especially in patients whose vitality is greatly depressed by grave infectious diseases.

In cases complicated at any stage of the operation by a profuse secretion of mucus, causing loud tracheal râles, the anesthetic should be discontinued until the air-passages are freed by coughing, vomiting, or both, and then should be resumed with great caution, since this is always a condition of grave danger.

Inspiration pneumonia due to the sucking of infected particles into the lung through the throat may be avoided in part if not wholly by extending the head far back and keeping the larynx carefully cleaned out by means of swabs and sponges. This is, of course, preceded by preliminary antiseptics in cases of mucous membrane infection. In vomiting the patient should be turned on his side instead of, as is usual, simply having the head twisted. Where the mucous secretions are unusually free, or there is bleeding into the throat, it is well to have the head hanging directly backward over the table so that the clots and mucus can accumulate in the nasopharynx, from which they can easily be removed before they are aspirated into the trachea.

Where the narcosis is unnecessarily prolonged it should be interrupted rather than continuous, and chilling should be avoided by operating in a hot room and keeping the surface of the patient carefully covered.

After abdominal operations bandages should be applied loosely, and the patient should be encouraged to breathe deeply and to expectorate.

Moreover, such patients, and particularly those whose circulation is feeble, should be changed from side to side and partly elevated at times.

In operations on the stomach, if time is not given for previous preparation, this viscus should be carefully washed out. Under other circumstances Cushing's recommendation that the patient be treated for a number of days with sterilized liquid food and water is an excellent one.

Anderson states that in many thousand cases of anesthesia for minor and major operations, two-thirds of which were chloroform narcosis, there was not a death from lung complications in St. Winifred' s Hospital. This remarkable record he attributes to strict antiseptic precautions, the use of antiseptic gargles, antiseptic air in the operating-room, warm rooms, and the greatest care in the administration of the anesthetic. This last precaution he looks upon as the most important

THE PREVENTION OF DEFORMITIES.

It is universally acknowledged that the highest and best functions of surgery and medicine are exercised in the direction of the prevention of disease and deformity. In the memory of those who have not yet reached middle age a change is perceptible in the class of cases coming to surgical clinics, this particularly in regard to monstrous tumors, vast ulcerations, and gross and crippling deformities, at one time common enough, now comparatively rare. This rarity is because efficient treatment is, as a rule, applied before the lesion is allowed to reach its complete development. While this is especially true of malignant growths, it is also observed in regard to the angulated and twisted spines incident to either Pott's disease or lateral curvature, and to the twisted, distorted or malplaced limbs caused by paralysis or tuberculous involvement of the joints.

This preventive treatment of deformity, to be efficacious, must be founded upon an early diagnosis, and it is upon this point that Sayre lays particular stress in his address before the Philadelphia County Medical Society (*Proceedings,* vol. xxiv, No. 8).

Preventive treatment, Sayre notes, cannot be undertaken too early in cases such as congenital talipes equinovarus. If proper manipulations to correct the deformity begin at birth, at the time the child is old enough to stand the feet have been brought into the proper position, so that each step taken serves to keep them in the right direction. On the contrary, if the feet are allowed to stop short of full correction, each step tends still further to increase the deformity. Patience and perseverance, remarks Sayre, together with bandages properly applied, in infancy, are capable of curing almost every case of clubfoot without further interference, and a strong protest is entered against trusting a child to outgrow this or any other deformity. Indeed, it is held that the tendency is to grow into rather than out of such deformity, unless the cause producing it is removed.

Another common cause of deformity is rickets, and it is properly argued that when enlarged epiphyses, sweating of the head, irregularities in teething, delayed ossification of the fontanelles, enlarged abdomen, and evidence of malassimilation of food either associated or individually, show the presence of this disease, such measures should be taken as would prevent the development of knock-knees or curved spines; thus osteotomy and other operations now so often required for the correction of these preventable deformities will be avoided.

In infantile palsy the opportunity for preventive treatment is particularly great. Children thus afflicted should be most carefully watched. If any tendency to deformity is observed, proper means should at once be taken to hold their growing bones in as nearly a normal position as possible until they have become ossified. The admirable paper contributed by Jones (*Lancet,* Feb. 14, 1903) on the surgery of the paralysis of children shows how much can be done to remedy these deformities after they have developed. Preventive measures can from the first, as a rule, render unnecessary the prolonged and formidable surgical treatment which Jones shows is often necessary to secure satisfactory results.

An uncorrected torticollis ultimately distorts the face and may produce a lateral curvature of the lower part of the spine. It is particularly in the avoidance of lateral curvature that Sayre insists upon the importance of an early diagnosis. His observations on this question are extremely pertinent. He holds that whenever a mother brings a child for examination because its body does not seem to her to be quite normal, it is almost sure she is correct, and so the examination of the child should be a very thorough one. Children often hold themselves particularly straight when first examined, but when the muscles are allowed to relax and the body to assume its ordinary attitude, the curvature may be detected. One of the first things noticed is an apparent elevation of one hip. Measurements will show that both legs are of equal length and the iliac crests are at equal distances from the floor, but the twist in the lumbar spine and the change in the position of the ribs have so altered the contour of the waist as to produce the appearance of an elevated hip. The space between the body and the arms, as the latter hang by the sides, should be symmetrical; if not, a most careful examination should be made.

The scapulæ give early warning, and if one looks more prominent than its fellow, the patient should be made to bend forward with the arms dropped toward the floor, thus allowing a careful palpation of the contour of the ribs. The distances of the navel from the nipples and the comparative size of the breast should be noted, since irregularities in these measurements are among the early signs of rotary curvature.

It is in the early stage of lateral curvature, and as a rule only in such stages, that treatment is curative. The same holds true in regard to Pott's disease, hence the family practitioner should be alert for the first signs of this affection.

Attention is called to the torticollis characteristic of cervical tubercular affections, to the grunting respiration which attends both the cervical and dorsal diseases, to the backward position of the head which is observed at times when the disease is situated in the lower thoracic region, the head being thrown as far back as possible, sometimes until the face looks directly upward, in order to remove the weight as much as possible from the front part of the vertebral bodies and transfer it to the transverse processes. Moreover, in this part of the spine there is sometimes noted a contraction of the abdominal muscles, giving an appearance as if a string were tied around the body. The pains which accompany Pott's disease are almost always referred to the distal extremities of the nerves involved, while it is very rare for the pain to be located in the back. In consequence these patients are often treated for worms, colic, indigestion, and stone in the bladder for months without any suspicion of the true state of affairs.

Sayre notes that the differential diagnosis between Pott's disease and lateral curvature of the spine may, in the early stage of each, be extremely difficult, and he cautions the surgeon to watch for a slight increase of temperature in doubtful cases, and for muscular spasm.

An early symptom characteristic of hip-joint disease is involuntary spasm of the muscles controlling the joints, which at first produces very slight restriction of motion, and cannot be detected unless time is allowed for the patient to become relaxed after being stripped. The examination must be thorough.

Attention is called to the deformities following unrecognized sacroiliac disease allowed to run its course until there is extensive destruction of the bone, diagnosed as a rule, and treated for months, as sciatica.

The lesson which this paper should accentuate is the folly of trusting to the conservative forces of nature to better lesions which from their position and from the attendant mechanical condition are bound to grow worse; the necessity of thorough examination of all children with beginning deformity of any kind; and the need of a general, intelligent school inspection of the young of large communities, for the purpose of detecting such beginning deformities in the children of parents too poor to secure medical advice or too ignorant to note departures from the normal.

Reports on Therapeutic Progress

EDEBOHLS'S OPERATION OF DECAPSULATION OF THE KIDNEY FOR THE CURE OF CHRONIC BRIGHT'S DISEASE, AND THE INDICATIONS FOR ITS PERFORMANCE.

TYSON considers this question in the *New York Medical Journal* of October 10, 1903, and evidently thinks that the plan is one deserving of some confidence. He says that if one stops to think of the morbid anatomy of chronic nephritis it seems clear that the chief obstacle to repair is really an anemia, or avascularity. In chronic parenchymatous nephritis the blood is expressed from the vessels, and nutrition is interfered with by the exudate within and without the tubules. As a consequence, the cells, after an effort at life, degenerate and die. In interstitial nephritis the vessels are compressed and destroyed by the interstitial overgrowth, and thus again the nutrition is cut off. Now strip off the strong, tough capsule, and a powerful resistance to the movement of blood is removed. It again moves freely through the organ, the free secretion of urine is again possible, normal nutrition again asserts itself, and the power of repair returns.

In acute nephritis quite the same con-

dition exists. Although there is first intense hyperemia, this is soon replaced by an avascularity, so far as the capillaries, on which depend the phenomena of nutrition, are concerned—due to the pressure of proliferated cells and an extravasated blood. On the other hand, acute nephritis has quite rarely come under operation. All of the cases reported by Edebohls were cases of chronic nephritis either parenchymatous or interstitial. Two of Harrison's original cases, however, were acute nephritis, and one was subacute. The author is inclined, therefore, to believe it is the relief from intracapsular pressure that favors the restoration of function and nutrition, especially in the light of Johnson's studies, which fail to find the intervascularity of the renal and perirenal tissue claimed by Edebohls. In other words, it is the removal of tension at first suggested by Harrison.

From a careful study of the cases of Harrison and Edebohls, as well as his own and such other cases as have come under his notice, the author is satisfied that the operation is a serviceable one, and that many lives may be saved and prolonged, and even cures obtained, by its judicious application. To use a homely but emphatic and applicable expression, he asserts that he believes "the operation has come to stay."

The author has said "its judicious application," as though this was difficult, but he does not believe it difficult to select suitable cases. In the first place, he takes it for granted the operation should not be done until the usual medical measures of treatment have been thoroughly applied. Yet the operation should not be deferred until the patient is moribund. Certainly, the chances of recovery must be greatly increased where the disease has not been allowed to go too far.

Again, he considers cases of parenchymatous nephritis more favorable for operation than cases of interstitial nephritis, although Edebohls's cases include twenty-nine of the latter variety and twenty-two of the former. It is reasonable, however, to expect earlier and more complete repair in parenchymatous nephritis, since there is not so much actual destruction of vessels as simple compression. They can therefore more readily resume their natural caliber and admit the circulation of blood through them, whereas in interstitial nephritis, especially if advanced, there is more complete obliteration of the kidney tissue. Moreover, the capsule is stripped off with much more difficulty in interstitial nephritis, often dragging some of the substance of the organ with it, while in parenchymatous nephritis the capsule strips off easily.

Thirdly, it is not reasonable to expect results as satisfactory where there are extensive cardiovascular changes. These once established are permanent. They become the real source of danger to life where they exist, and the operation of decapsulation does not remove them. A study of Edebohls's cases goes to show that those least benefited included cases of this kind. Such cases are generally those in which advanced retinal changes, including albuminuric retinitis and retinal hemorrhage, are present.

The author has intimated that the operation may have further applications than those considered. Thus Edebohls reported to the American Gynecological Society, at its meeting in May, a case in which he decapsulated both kidneys for puerperal eclampsia with satisfactory results. But the further application he has in mind is obstinate so-called idiopathic hematuria, cases in which there is no stone, no malignant growth, no malaria, but which persist month after month, and gradually devitalize and destroy the patient. Tyson has one such case in mind in which he will advise the operation if the hematuria persists.

He is encouraged to give this advice because the operation is not a dangerous one in the hands of a competent surgeon. Its details belong to the surgeon, but being postperitoneal, the dangers of peritoneal infection are comparatively small. The surgeon should, however, be a competent one, and have had experience with renal surgery. There is sometimes difficulty in reaching the kidney, especially in fat persons, and those in whom the distance between the twelfth rib and the rim of the pelvis is small, or where the kidney is high up beneath the ribs. In such an instance the author prefers to have as an operator a surgeon who has performed the operation before, or who is familiar with the technique of renal surgery. Some interesting cases of failure are related by Edebohls, which are not very creditable to the operating surgeon.

IS EPILEPSY A FUNCTIONAL DISEASE, AND IS IT CURABLE?

At a recent meeting of the Philadelphia Neurological Society STARR read a paper with this title, and he has kindly sent at our request this abstract.

Recent advances in our knowledge of nervous diseases and certain arguments derived from a study of two thousand cases of epilepsy seem to prove that the disease is always due to organic lesions in the brain, and must no longer be regarded as a functional affection.

First, the resemblance between Jacksonian epilepsy and idiopathic epilepsy is much closer than at first appears. If it is accepted that Jacksonian epilepsy is always organic, this suggests that idiopathic epilepsy may be so.

In Jacksonian epilepsy the attack is uniform in every case. It is preceded by an aura of a sensory, or motor, or psychical kind. It is characterized by a motor spasm which often goes on to a general convulsion. It is attended by a perturbation of mind which often goes on to unconsciousness. It is followed by prostration and by sleep.

An analysis of two thousand cases of idiopathic epilepsy shows that in 38 per cent the attack is preceded by an aura which is always uniform in the same individual, and in no way differs from the sensation preceding the Jacksonian attack. There was numbness in one or both arms in 76 cases, in one or both legs in 27 cases, in one or both sides of the face in 22 cases, in the trunk in 4 cases; visual hallucinations in 68 cases, auditory hallucinations in 30 cases, hallucinations of taste or smell in 14 cases; mental aura of fear, fright, or morbid impulse in 51 cases; vertigo in 158 cases.

In these cases, had the aura been followed by a local spasm only, the attack would have been considered an evidence of organic disease in the brain. But the general fit which followed was only a manifestation of a greater discharge and more sudden discharge of nerve energy than a local fit. Hence this is a matter of difference in degree rather than in kind. And the loss of consciousness does not afford any material difference, for that varies in degree in both Jacksonian and idiopathic epilepsy—and the loss depends on the severity of the shock to the brain, whether that starts from a single focus, as in Jacksonian attacks, or from an unknown focus in idiopathic attacks. In 23 per cent of the two thousand cases the resemblance between Jacksonian and idiopathic epilepsy was very close. Hence in these cases at least there was a probability of organic disease as a basis for the epilepsy.

Secondly, in four hundred cases of maldevelopment of the brain one hundred and fifty-six were the subjects of epilepsy. In these cases the epilepsy was clearly organic in origin. Among the two thousand cases of epilepsy there were one hundred and ninety-two which showed on examination clear evidences of maldevelopment of the brain, such as mental defects, signs of infantile hemiplegia, or hemianopsia. In many of these cases the existence of this maldevelopment had been overlooked. In two cases congenital hemianopsia had existed for years without the knowledge of the patient. In these cases certainly the disease was organic.

Thirdly, the age at which idiopathic epilepsy develops suggests that it is a disease due to defective development of the brain. Of two thousand cases six hundred and twenty-two developed before the age of ten, and seven hundred and fifty-five between the ages of ten and twenty. Hence 68 per cent developed during the period of brain growth. An examination of epileptics shows that some mental or physical sign of degeneracy or defective evolution is usually present. It is to this that the difficulty of educating epileptic children is to be traced. The classification of the mental state was attempted in my cases. It is recorded as idiotic in eleven cases; imbecile in sixteen; poor in five hundred and eighty; fair in two hundred and sixty-nine; good in eight hundred and fifty-four. Thus 44 per cent of the patients showed some defective mental capacity. This is hardly to be explained as the result of a functional affection, but may be taken as an evidence of defective development, a form of organic disease. And this leads to the remark that it is fallacy to state that epileptic patients present no symptoms between the attacks, for evidences of degeneracy can certainly be detected in quite a large percentage of cases. It is rare to find an epileptic who is perfectly normal mentally and physically. But it is a mistake to trace the epilepsy to

minor abnormalities, such as defective eye muscles, abnormal growth of tonsils or adenoids, uterine displacements, or phimosis. These and defects of nutrition and digestion are merely concomitant conditions, like the epilepsy pointing to imperfect growth. Their correction, while removing the irritation from a hypersensitive nervous system, will never cure the underlying organic disease.

Fourthly, the study of the alleged causes of epilepsy affords another argument for its organic nature.

1. Heredity. In my two thousand cases there was a bad inheritance in seven hundred cases; either epilepsy in some near relative, 136; alcohol in a parent, 120; serious nervous disease, 118; rheumatism, 108; tuberculosis, 76; or some combination of these, 143. This would indicate that the patient inherited a weak and probably defective nervous system—a nervous system which is organically imperfect.

2. Trauma. In two hundred and twenty-nine cases trauma of the head was assigned as a cause. That trauma of the head is more commonly followed by epilepsy in comparison with that of other portions of the body is proven by the statistics of the Franco-Prussian war. The records show that among 8985 persons wounded on the head, 46 developed epilepsy; while among 77,461 wounded elsewhere, only 17 became epileptic. When a fracture of the skull causes a laceration of the brain, we are not surprised at the subsequent development of epilepsy. It is probable that in many cases where no fracture occurs a hemorrhage within the brain has occurred, small in extent, but sufficient to produce a scar and act as a focus for the epilepsy. Traumatic cases are therefore probably organic in origin.

3. Certain infectious diseases precede the development of epilepsy in some cases. Thus fifty of my two thousand cases developed as the sequel of the infectious diseases. Marie has shown that multiple sclerosis of the nervous system is probably a sequel of these diseases. It is possible, therefore, that in the cases where epilepsy develops some such sclerosis may be present.

4. Sunstroke is a cause in a few cases, and here again the disease may be regarded as due to some organic change in the brain.

5. The epilepsies of advanced life are traceable to endarteritis and atheroma, as is shown by the fact that such patients usually suffer from apoplexy and die of this disease. But twenty-six of my two thousand cases developed after the age of fifty. Among the alleged causes therefore quite a number indicate the organic origin of the affection.

Fifthly, the obstinate nature of the disease and the great difficulties met with in producing a cure differentiate it also from the functional nervous affections, and offer an argument in favor of its organic origin. While almost every physician has seen cases of the cure of epilepsy, in the vast majority of instances the disease is known to be a chronic one, and the fits continue at intervals throughout life.

It is of course possible by means of a proper regulation of life to induce a healthy state of mind and body. It is possible by removing all the sources of peripheral irritation to exempt the nervous system from extraneous stress. It is possible by the free use of bromide, antipyrin, simulo, and such remedies to quiet the nervous system and to reduce very considerably the frequency of attacks, but the tendency of the disease is to continue. Even in the cases operated upon by surgeons where the skull is trephined and some focus of irritation in the brain is found and removed, it is impossible to secure a complete cure, for the scar left after the surgical operation may be as sure an irritant productive of fits as the scar of the original trauma or disease which it was the object of the operation to eliminate.

Of fifty cases of my own which have been trephined none have been permanently cured, though many have been improved by the operation. Hence in the obstinate nature of the disease there is a certain amount of evidence that it rests upon an organic basis. This does not relieve us from the necessity of using every means for the relief of the disease. We constantly treat many organic diseases with success. But it certainly affords a contrast between epilepsy and the functional diseases of the nervous system which usually yield promptly to appropriate remedies.

Lastly, that epilepsy is an organic disease is not a new proposition. From the time of Schroeder Van der Kolk to the

present time many authors have found lesions in the brain to account for epilepsy. But each observer has in turn found some new lesion, or located the disease in a new region of the brain, and the multiplicity of cases advanced by pathologists has detracted from the force of their conclusions. As a matter of fact all these observations are worthy of attention. They all demonstrate the existence of gross changes in the epileptic brain.

The brain is a storehouse of energy, ready to give it forth in orderly manifestations, as in voluntary action in speech; or in disorderly discharge, as in an epileptic attack. The attack is the symptom—it is not the disease. The disease is a disorder of control over inherent energy. Its existence is a proof of the weakened defective organization of the brain, and any lesion, no matter where or of what kind, may interfere with the mechanism of control.

THE DIAGNOSTIC AND THERAPEUTIC USES OF METHYLENE BLUE.

MEILLERE states in *La Tribune Médicale* of August 22 and 29, 1903, that the manner in which methylene blue is eliminated by the kidneys affords an index to the condition of the renal and hepatic functions. If five centigrammes of this drug be injected into the tissues of a healthy individual it appears in the urine at the expiration of one-half hour. The color, at first faint and of a greenish tinge, reaches its maximum intensity by the third or fourth hour, remains the same for several hours, then gradually decreases in intensity, and disappears entirely at about the fortieth hour. Departures from the normal method of elimination, which may be classified as prolonged, delayed, rapid, and intermittent, indicate departures from health. Thus prolonged and delayed elimination points to renal impermeability; rapid eliminations give evidence of a defect of continuity in the secreting structure of the kidney; intermittent elimination shows the presence of hepatic disease or of parenchymatous nephritis. In a few instances methylene blue has been decomposed within the body and eliminated in the urine as a chromogenetic substance. This method of elimination has not yet received accurate clinical interpretation.

Meillère reviews the therapeutics of methylene blue very fully. He believes that it possesses analgesic, antipyretic, diuretic, and cholagogue properties, and that it has proven of value in malaria, in rheumatism, in gonorrhœa, and other inflammations of the genito-urinary tract. Good results are claimed for it in cases of enterocolitis, when used as an enema. As a topical application it has been found useful in the treatment of inflammations of the nasopharynx, middle ear, and eyelids, and also in pruritus. Meillère states that the maximum dose for internal administration is 25 centigrammes.

THE USE OF PURE CARBOLIC ACID IN THE TREATMENT OF SMALLPOX.

The London *Lancet* of October 24, 1903, contains an article on this subject by BONIS which seems to us of some importance. The treatment is carried out in the following manner: The pure acid in a liquefied state is applied to the vesicles over a limited area with a small camel's-hair brush, the application being made on successive days. On the first day the face and neck are selected for treatment, on the following day the hands and arms, then the lower extremities, and finally the trunk. The effect of the acid is seen in the rapid shriveling up and scabbing of the vesicles. A second and third application may be made, if necessary, over certain parts of the body. An important detail of the treatment is to secure the early removal of the scabs, either by an oil poultice or otherwise, as this tends to prevent subsequent abscess formation.

This method of treatment is, of course, one which takes some time to carry out, as it must be done carefully and thoroughly if the best results are to be obtained. There is no reason why it should not be entrusted to an intelligent nurse, with instructions to use the acid cautiously in the neighborhood of the eyes and not to allow it to run on the healthy skin. The treatment is found to cause little or no pain or discomfort—in fact, it relieved the intense irritation which is so prominent a feature in smallpox. No signs of carboluria have been observed, nor other evidence of toxic action, from absorption of the drug. The effect would appear to be

a purely local one, the acid penetrating the walls of the vesicles and pustules, disinfecting their contents, and so preventing the absorption of septic matter into the system.

One of the most striking results of the treatment is the comparative mildness of the secondary symptoms or those coincident with the maturation of the pustules. In many of our cases the patients expressed themselves as feeling well and hungry by the eighth or ninth day after the appearance of the rash, or even earlier. By this time the pustules on the face will have disappeared and the great majority of those on the limbs and trunk will have dried up or aborted. After the temperature has fallen on the appearance of the eruption, it usually remains at a low level during the rest of the illness, even in severe confluent cases, averaging not more than 100° or 101° F. In several of the patients the temperature was practically normal throughout. A corresponding improvement is noticed in the state of the pulse and the general symptoms.

With regard to the subsequent pitting it is believed that the carbolic treatment is decidely beneficial in lessening the disfigurement, although it is not to be relied on as a certain preventive. It is reasonable to conclude that, by shortening or modifying the severity of the pustular stage of the disease, the liability to the formation of deep and permanent scars is diminished. Another point is that this use of the germicide tends to diminish the risk of infection from aerial convection, and to remove the disagreeable odor which accompanies many cases of the disease.

The total number of cases treated up to the present time has been thirty-five, of which twenty-two were of a severe kind, mostly confluent, more than half of these being in unvaccinated subjects. Five of the cases proved fatal, two of which were children suffering from scarlet fever, while the third was one of malignant smallpox with minute subcutaneous hemorrhages and death during the papular stage. Bonis states that in the earlier part of the epidemic he used the acid only on the face and hands with the idea of diminishing the scarring, but in order to obtain the best results it is necessary to apply it carefully over the whole body as described.

THE TREATMENT OF GASTRIC ULCER.

In the course of a symposium on gastric ulcer held at the last meeting of the British Medical Association GRIFFITHS is reported in the *British Medical Journal* of October 24, 1903, as expressing the following views:

For many years past he has treated all cases of gastric peptic ulcer which have come under his care by giving the stomach absolute rest and by abundant rectal feeding. In the first place the patient is provided with a nurse well trained for this particular treatment. The patient is put to bed for twelve or fourteen days; the bowels are well cleared out by an enema, and the rectal feeding is commenced an hour or two later. Nutrient enemata at a temperature of from 97° to 100° are repeated every four hours as nearly as possible, and in the intervals drink enemata are given according to the requirements of the patient. The nutrient enemata consist of the various articles of diet which are digested and absorbed with the aid of digestive agents or otherwise in the lower bowel. The following is an example of an ordinary rectal feeding: Five ounces of good beef tea, half a tube of peptonizing powder, a dessertspoonful of glucose, a dessertspoonful of brandy, and a small quantity of table salt.

It is unnecessary to enter into a detailed account of the preparation of the various articles which are used for rectal feeding. Each nutrient enema should be limited to five or six ounces to avoid irritating the rectum, and it should be injected into the bowel by its own gravitation through a funnel and a rubber tubing provided with a glass or rubber nozzle of small caliber and a clip near the end. The funnel is placed in an ordinary ring stand, supported on a table, about two feet above the level of the patient's hips. By adopting this plan, which is far simpler than the use of a syringe, there is less danger of irritating the anus and of inflating the bowel.

The ingredients of the nutrient enemata may be varied indefinitely, but it should be remembered that they must be peptonized or peptonizing and non-irritating. The object is to give the patient sufficient nutriment to supply the waste, and something more to help the healing process in the stomach. The nutrient

enemata are supplemented in the intervals by enemata of sterilized water or normal saline at temperatures from 97° to 100°, varying in quantity from four to eight ounces, or even more.

The amount of nutriment and fluid required varies very considerably in different patients.

Attention is particularly called to two facts which are of great practical value, and which are not generally known, namely, the condition of the tongue and the smell of the breath. They are invaluable guides as to the efficiency and sufficiency of the rectal feeding in cases of peptic ulcer. When the patient is amply and properly fed the tongue is moist and healthy-looking and the breath is sweet (normal). The breath of a starving patient has a peculiar tainted or offensive smell; it is difficult to describe—in fact, it cannot be described except by comparison. The nearest thing to it is the drunkard's breath—once noticed it is easily recognized afterward. When the patient has this peculiar breath and dry tongue, and thirst, the drink enemata (bowel drink) especially should be increased. These two signs are known to the well trained nurse, and she also knows that the tongue and breath will tell tales if she fails in her duty. When properly fed the patient is perfectly free from pain, hunger, and thirst, and consequently happy after two or three days' treatment. On the other hand, if the patient does not respond to the treatment in the course of a few days, one may naturally suspect that there is something more serious than a peptic ulcer to deal with. It is not necessary, and in fact it is better not, to wash out the bowel every day—every second or third day is sufficiently often—and if the bowels act of their own accord aperient enemata are not necessary. When the rectum is intolerant of artificial feeding, which is very seldom the case when it is gently and properly treated, from 5 to 10 minims of laudanum are added to the enemata two or three times in the twenty-four hours. The patient is not allowed to swallow anything, not even a teaspoonful of water. The mouth is rinsed out once a day, or oftener if the patient should desire it, for the purpose of cleanliness, but if the teeth are clean at the outset, even this is unnecessary.

This treatment is continued for ten or eleven days. As a rule ten days are sufficient. On the eleventh day the patient is fed very much as is a baby one month old, with small quantities of milk and water. The rectal feeding is still continued for another three or four days, but gradually diminished in proportion to the amount of food taken by the mouth. On the fifteenth day a small quantity of fish is allowed. It is unnecessary to enter into further details on this point. It must be remembered that a large number of chronic peptic ulcers with hard, swollen edges are probably not completely cured in fifteen or sixteen days; therefore great care must be taken as regards diet and partial rest to the stomach for some weeks longer, and finally attention should be paid to the patient's general state of health. Judging from the frequency of the cicatrices in the stomach at necropsies, and the occasional latent course of gastric ulcer ending suddenly in perforation, it is probable that a certain number are successfully treated as dyspepsia, and possibly some get well without any treatment at all. In artificial feeding we must remember that the rectum has to perform, with the aid of peptonizing agents, the work of the stomach. The chief function of the larger bowel is to absorb the liquid from the small intestine.

UROTROPIN IN TYPHOID FEVER.

ERNEST FUCHS (*Deutsche Archiv für klinische Medicinische,* lxxvi, 1-3) records the results of experiments undertaken with a view to ascertaining the value of urotropin in preventing bacteriuria in typhoid. Two points to which he devoted his attention were, first, how early the treatment was to be begun, and secondly, for how long the drug should be continued in order certainly to prevent the symptom. He found that out of 115 typhoid patients the bacteriuria only began twice during the febrile period; in other words, that it was, strictly speaking, a phenomenon associated with convalescence. It was inferred therefore that administration of urotropin should be commenced in the fastigium and continued well on through the convalescent period. The author compares two sets of cases. In the first series, 53 in number, urotropin

was not administered; 15 of them suffered from bacteriuria. To these may be added 22 previous cases, in all of which this symptom was present, making a total of 26 out of 75; of these 26, in 12 bacteriuria was due to the typhoid bacillus. The second series was 40 in number; all received the prophylactic treatment with urotropin. In only one case did bacteriuria appear. The dose of urotropin employed was two grammes per diem. The author concludes that the administration of urotropin in typhoid fever will certainly diminish the frequency of bacteriuria.—*British Medical Journal,* Oct. 24, 1903.

THE TREATMENT OF DISEASED FAUCIAL TONSILS IN THE ADULT.

DAVIS has contributed to the *New York Medical Journal* of October 31, 1903, a useful paper on this topic. In describing the diseased state of the tonsils that demands interference he says that on examination we find the appearance normal in color, the surface comparatively smooth, and scattered here and there a few small nodules, but these may, and usually do, have a hard indurated base. Examine the crypts, and again we will be surprised at the size, depth, and contents; the tonsil will be adherent to the pillars, one or both, more often the anterior; and in many cases the adhesions are so extensive that we find the pillars and the tonsil forming one solid agglutinated mass. These adhesions alone are sufficient to give the patient a great amount of suffering, as anything like a free action of the muscles, either in swallowing, talking, or singing, is interfered with. Others complain of a pain, more or less constant, which extends up the side of the neck, and is often referred to the ear.

Those who have done abdominal surgery readily appreciate how much trouble and suffering may be caused simply by bands of adhesion. The same factors hold true when we find extensive adhesions between the tonsil and faucial pillars.

Some of the most frequent symptoms accompanying diseased tonsils of this variety are hawking, cough, pain in deglutition, impaired hearing, change in voice, otitis, and neuralgia.

It is no wonder that we have so many and varied symptoms and sequelæ when we consider what an opportunity these deep, open crypts afford for the retention of secretions, the lodgment of small particles of food, and the easy access afforded to the entrance of all sorts of germs, where they will find every condition favorable in which to multiply and flourish. Here we have the open crypts, diseased tissue, and a home for germs, as well as the adhesions. The question then arises, How shall we deal with these diseased submerged tonsils?

In answer the author says, Meet them just as you would similar conditions when present in any other part of the body. You have your choice, either palliative or curative treatment. You find here diseased tissue and adhesions to deal with. How long would it take a general surgeon to decide whether in a case of necrosed tibia he would apply washes and plasters, or whether he would at once remove the diseased tissue? The laryngologist should adopt the same measure. Never waste time with sprays and paints, but at once proceed to remove the diseased tissue, separate adhesions, and endeavor to restore the parts to a normal healthy condition as speedily as possible.

The method we adopt for removing either a part or the whole of a diseased tonsil is of little consequence; every surgeon must decide that for himself. There has been much discussion as to whether an amygdalotomy or an amygdalectomy is preferable in these cases. The proper way to decide is in each case. We should remove all the diseased tissue, and until we do we have only done our duty in part. Whether we remove a part or the whole of a tonsil is simply a question of how much of it is diseased. The same rule applies here as in general surgery, not how deep to cut, but how deep must we go to accomplish the object, viz., to remove the diseased portion, and of that the surgeon himself must judge in each individual case. He will also choose the method he prefers, whether an electrocautery dissection, as recommended and practiced so successfully by Dr. Edward Pynchon, of Chicago, or the removal by the use of some one of the many good instruments at our disposal. The author prefers the Freeman tonsil punch, as designed by Dr. Walter Freeman, of Philadelphia. The advantages of this instrument are simplicity, easiness of operation, and with the application of a 10-per-cent

solution of cocaine a tonsil can be removed with very little, if any, pain to the patient, and no danger from hemorrhage. With this instrument we can remove a small portion at each sitting, or the entire tonsil at once. The important question, after all, is first to be able to make a correct diagnosis, and then to treat with the intention of curing and not merely palliating the trouble.

A CLINICAL STUDY OF THE USE OF ANTITOXIN SERUM (DUNBAR'S) IN HAY-FEVER DURING THE SEASON OF 1903; A NEW AND DISTINCT ADVANCE IN ITS MANAGEMENT.

Under this title MacCoy, of Philadelphia, reports his results in the *New York Medical Journal* of November 2, 1903. He asserts that he had not gone far in his study before he was impressed by the great latitude in public opinion as to what was to be called hay-fever. Many cases coming under observation as hay-fever were in no sense periodic in the summer months only, and not a few were composite or mixed cases, such as nasal polypi, nasal asthma, and chronic vasomotor rhinitis. He has limited his observations to such cases as could show summer periodicity, with a clear history of previous similar attacks, after these were reënforced by the history of heredity from one parent of similar attacks, and chiefly, by finding all the clinical evidences in each case present upon examination, viz., itching of nasal membrane, sneezing, itching of the conjunctival membrane and of the palate and fauces, spasmodic cough and asthma, as well as the intense nervousness and general lassitude often accompanying the attacks. Examination of the nasal cavities in the several cases showed the typical features present, such as a pale-gray, boggy, and leaking membrane, and the nasal cavities were often filled with watery seepage. Eliminating all but purely periodical autumnal attacks, which were always examined and the history taken, the author began treatment by the local application of the serum to the eyes and nasal mucous membrane by means of a pipette. To the conjunctival mucous membrane one or two drops were instilled from two to four times a day. For the nasal passages, from two to four drops were dropped in each nostril from two to six times a day. Fifteen cases were treated, all typical cases of periodic hay-fever.

In the fifteen cases in which the author made clinical experiments, the effect was so promptly manifested, the relief so complete, and the results so permanent for this season, that it appears really marvelous! We have all heretofore experienced such deep disappointment in our trials of various methods of cure—surgical and medicinal—that the writer was, to say the least, not enthusiastic concerning results, but he can truthfully say that he believes that no such advances have ever been made in the treatment of hay-fever. It remains to be determined whether there are in America some cases of hay-fever not amenable to cure by the use of the antitoxin serum of Dunbar. So far as the fifteen cases referred to can illustrate, they appear to confirm the contention of Professor Dunbar, that cases of hay-fever are dependent upon the toxin resident in the various pollens of grasses. It is interesting and noteworthy that the experiments of Professor Dunbar open up a new field, this being, so far as is known, the first instance of the production of an antitoxin serum or fluid where the animal product has been crossed with a vegetable product. The basis of this method is as follows:

As a result of researches extending over a period of seven years, Professor Dunbar, of Hamburg, has isolated a proteid substance from the pollen of rye, barley, wheat, and other gramineous plants which, when applied to the nasal mucous membrane and eyes of persons predisposed to hay-fever, produces all the subjective and objective symptoms of the disease; while when applied to individuals who are not predisposed, it elicits no morbid phenomena. He has also found that the pollen of roses, linden flowers, wormwood, and many other plants which have been considered as giving rise to hay-fever, produces no symptoms when thus used. It is interesting, too, to note that the surfaces of the toxic pollen are absolutely smooth, a fact which proves that the disease is not the result of irritation produced by sharp pollen spicules. For the purpose of securing an antitoxin, Dunbar injected the toxin into animals, but at first he found that their blood serum intensified rather than relieved the conditions produced by the toxin. Gradually, however, this prop-

erty became weaker and weaker, and finally the serum assumed distinct antitoxic qualities. Thus, when mixed with equal parts of toxin, it was found to neutralize the specific action of the poison, and when applied to individuals who previously had been treated with the toxin it produced immediate disappearance of the subjective symptoms, and after a few minutes great amelioration of the objective signs. Dunbar's experiments comprise more than thirty tests, of which nine were made on individuals who were predisposed to hay-fever, and the remainder upon those who had never suffered from the disease.

THE PRESENT STATUS OF SPINAL SUBARACHNOID COCAINIZATION.

Some months ago we published in the GAZETTE an editorial in which we expressed the opinion that this method of treatment would not continue popular with the profession. Since then we have printed several articles advocating it, but see no reason for reversing our views as already exploited. In the *New York Medical Journal* of October 31, 1903, MARK once more speaks of it in terms of praise. He says that the most particularly striking points in the cases reported by him have been the almost complete absence of shock, an element invariably present in general anesthesia, and the lack of unpleasant symptoms following the injection. Imagine any of these patients returning from the operating-room laughing and chatting with the attendants, and partaking of a meal immediately following general anesthesia! The contrast in general appearance between the patient who has taken a general anesthetic and the patient who has been operated on under the subarachnoid injection of cocaine is the most striking thing seen in surgery.

In old prostatics, in whom a question of operative relief has arisen, the bugbear of the surgeon has been the effect of anesthesia and shock. Almost always sclerotic to a high degree, very often the subjects of complicating kidney lesions, and with powers of resistance to shock greatly reduced, they have proved most uncompromising subjects for operative interference. In such cases as these the subarachnoid use of cocaine promises much. In kidney surgery the moments of greatest anxiety are spent in the hours of retching and vomiting following the exhibition of the anesthetic. The nausea and vomiting of spinal cocainization, if they are present, are slight and transient and can give rise to no concern. Such advantages are of more than imagined importance in prostatic and renal surgery.

Reasoning from the evidence adduced for and against the method, the writer believes that the following conclusions are justified:

1. That the method is as safe as, if not safer than, general anesthesia.
2. That we may safely employ up to 48/100 of a grain of cocaine without fear of toxic effects.
3. That shock, when present, is decidedly less than that of general anesthesia.
4. That it is attended with less danger of annoying sequelæ and symptoms.
5. That on account of the variability in the length of its analgesic action, it is contraindicated in prolonged operative procedures.

EXPERIMENTS TO DETERMINE THE VALUE OF FORMALIN IN INFECTED WOUNDS OF THE EYE.

To the *Medical News* of November 21, 1903, CLAIBORNE and COBURN contribute a paper in which they give the following conclusions:

1. Formalin, 1 in 500, may be injected into the vitreous of rabbits without producing more than momentary disturbance of the eye.
2. It is possible to cause panophthalmitis and consequent destruction of the eyes of rabbits by injecting three minims of a turbid solution of streptococci into the vitreous.
3. It is possible to produce the same result by infection in the ciliary region caused by penetrating wounds with infected pointed instruments.
4. Infection of the vitreous and ciliary region does not necessarily cause destruction of the eye. At times the infected eye recovers spontaneously, the inflammatory symptoms gradually subsiding.
5. Formalin, 1 in 1000, when injected into the vitreous, exerts no influence on streptococcus infection of the vitreous.
6. The results of these experiments warrant the treatment of commencing infections of the eye by injections into the capsule of Tenon of 1-in-1000 or even 1-in-500 formalin solution.

In view of the large quantity of infected material injected into the eyes of these rabbits it is possible that the results would have been far more favorable had the injections of formalin been made more frequently.

While in the authors' first experiment the rabbit which had no treatment and the rabbit which had the intracapsular injections recovered completely, it is but proper to state that there remained a very slight opacity apparently in the posterior part of the lens, or on its posterior capsule, in each animal. This was probably due to the injury to this structure by the hypodermic needle, for it is quite impossible to perform the above detailed manipulations without struggles. This was the case with all the animals notwithstanding the free use of cocaine. It is also possible that these opacities were deposits of lymph on the posterior surface of the lens such as are frequently observed after certain types of inflammation of the uveal tract. In all other respects these eyes were normal.

INCOMPLETE REMOVAL OF PLACENTAL TISSUE THE MOST POTENT CAUSE OF PUERPERAL SEPSIS.

In writing on this important subject in the *International Medical Magazine* for November, 1903, KRUSEN expresses the following views:

He believes, in all cases in which there is the slightest suspicion that there are fragments of placental tissue within the uterus, that organ should be thoroughly explored and carefully emptied under the strictest antiseptic precautions. By far the greatest number of cases of puerperal sepsis observed by the writer have been due to incomplete removal of the placental tissue.

The treatment should be local and general. The whole genital tract should be thoroughly disinfected, and the uterus emptied. If the discharge continues to be foul, frequent intra-uterine douches should be employed. It is often advisable to provide drainage by inserting loosely a strip of iodoform gauze; 10- to 20-grain iodoform suppositories may be inserted in the vagina. If abscesses form around the uterus, they should be evacuated through the vagina if possible. The method employed by Pryor, of packing the uterus with 10-per-cent iodoform gauze and packing the pelvis through a broad incision in the posterior cul-de-sac, gives good results.

The general treatment should be stimulating and supporting. Easily digested food should be freely administered. Strychnine, digitalis, nitroglycerin, and adrenalin chloride may be used either by mouth or hypodermically if they are indicated. Ice-bags may be employed over the abdomen, and tend to limit the spread of the inflammation. High enemas relieve tympanites and irrigate the bowel. The use of normal saline solution, either by rectal injection, hypodermoclysis, or intravenous injections, is a valuable adjunct to the other methods. Very often the stimulating and supporting method of treatment will save cases apparently hopeless, and will give better results than surgical intervention under such unfavorable circumstances.

The use of the curette after the uterus has been thoroughly emptied is harmful, as it breaks down the leucocytic wall, which serves to prevent the invasion of the deeper layers of the uterus by the offending bacteria. In the most aggravated cases of puerperal sepsis, those of streptococcic infection, the uterus is empty, and the vaginal discharge very slight.

Hysterectomy is usually mutilating if not fatal in the treatment of sepsis. If hysterectomy is to be of service it must be performed early, before the microbes have invaded the general system, and this means the unnecessary sacrifice of the uterus. If late, the mortality is great and operation practically useless. If one is confident that there is an abscess of the uterine wall, and that the disease has not extended materially beyond the uterus, then hysterectomy is indicated; but vaginal section and intra-uterine and intra-pelvic packing with 10-per-cent iodoform gauze will save a larger percentage of such cases than hysterectomy.

In making a vaginal examination during labor, the hand should be as thoroughly asepticized as if the obstetrician intended performing an abdominal operation, and the examinations should be as infrequent as possible. If the physician has been recently operating upon a septic case, extra precautions should be taken, and aseptic rubber gloves should be worn.

If the uterus is thoroughly contracted and no unusual examination or manipula-

tion, such as a forceps delivery of placenta, etc., has been employed, douches are not necessary.

Krusen has never used formalin intravenously.

Perfect rest of the limb in an elevated position is absolutely necessary in the treatment of phlegmasia alba dolens. After it has been wrapped in gauze and cotton saturated with lead water and laudanum and the acute symptoms have subsided, he covers the part with an ointment of equal parts of ichthyol, belladonna ointment, and laudanum. The leg should never be rubbed because of the danger of detaching fragments of the thrombus. The general health and strength should be supported by carefully regulated diet and stimulants, if asthenia is marked. The patient should be kept in bed several days after symptoms have subsided for fear of an embolism, which is always possible until clot has been absorbed or organized.

THE HYPODERMIC USE OF MERCURY IN SYPHILIS.

COLLINGS writes on this subject in the *Interstate Medical Journal* for November, 1903, stating that the cases to be selected for the use of this plan should be largely those in which there is an existing necessity for the patient to be brought rapidly under the influence of the mercury. This would include cases of pernicious or malignant type, in which it is sometimes impossible to obtain results in any other manner. Also cases of rapidly destructive lesions, to prevent disfigurement or loss of function; cases of impending paralysis, whether from endarteritis or gummatous formation; and many cases of cerebral syphilis, in which a very rapid and profound effect is a necessity. In a word, it is indicated, in fact demanded, in all cases of emergency unless it is known that there are serious contraindications to its use in the individual case—as, for example, serious kidney disease. The question as to whether it should be used as a routine treatment should be decided by the attending physician from time to time.

The method that will most certainly and quickly relieve the manifestations of this disease and prevent their return is the best to use, but this idea should not be pursued in the face of severe pain and discomfort, as sometimes occurs, to the point of losing our patient. It is not the author's custom to treat every patient who has syphilis with injections, but he treats a good many of them by that method. Situated as he is at Hot Springs, Arkansas, he seldom has an opportunity of personally conducting the treatment of a case through the entire course, as the patients are almost entirely among the visiting class. They remain there from one to two or three months, and then are lost sight of for several months or entirely. When a case comes to him that has been more or less intractable at home, and where there is a necessity for the relief of manifestations quickly, even though there be some discomfort, the injection treatment is the best to use—at least until the patient is brought well under the influence of mercury, when the inunctions may be substituted. The injections place the drug where it will do the greatest amount of good in the shortest possible time.

After considerable experimentation the writer has adopted the following solution of the bichloride of mercury made up in two-per-cent solution of chloretone:

℞ Hydrargyri bichloridi, c. p., gramme 0.50 (grs. vijss);
Sodii chloridi, gramme 0.25 (grs. iv);
Aquæ destillati, grammes 4.00 (f3j).
M. ft. sol. (gently heat).
Chloretoni, gramme 0.50 (grs. vijss);
Aquæ destillati, grammes 20.00 (f3v);
Alcoholis absoluti, gramme 1.00 (min. xv).

Dissolve chloretone in 20 Cc. distilled water, add alcohol, and finally add the mercury and sodium solution. Shake well and filter.

This makes a 1-to-50 solution of the bichloride, of which ten minims would represent one-fifth of a grain. It may be given in doses of from five minims up to twenty or even twenty-five.

The chloretone is not readily soluble in cold water, and so the above solution is made by the addition of a small amount of absolute alcohol, in which it is very soluble. The formula given above is rendered practically painless in almost all cases by the addition of the chloretone, and its use less painful at the time of injection, and followed by less soreness and irritation than any other.

Chloretone is a white, crystalline compound, belonging to the fatty acid series, and is formed through the interaction of chloroform, acetone, and an alkali. In sufficient doses it acts as a hypnotic. It is also an antiseptic, and in solution is a local

anesthetic, its action in this respect resembling that of cocaine, except that it is non-toxic.

In administering the injections one must be guided largely by the effects. Ordinarily, a patient will stand ten minims every day for four to six days; then a large dose should be given every second or third day, or possibly once or twice a week, as the symptoms demand. The post-trochanteric region should be selected to give the injections, and they are given deep into the muscular tissue. The skin should be disinfected by being briskly rubbed with a piece of sterilized or carbolated gauze saturated with alcohol. The syringe most convenient to use is known as the "Sub Q" syringe. It is made entirely of glass with an asbestos packing, so that it may be frequently boiled. The needle used is a platino-iridium needle which does not corrode or rust, and it should be long enough to reach deeply into the muscular tissue.

In giving the injections the syringe and as many needles as there are patients to be injected during the morning hours may be boiled, and the needles taken from the water as needed.

The syringe used need not necessarily be boiled before each injection when they are given close together, and when there has been no chance of infecting the inside of the syringe.

THE USE OF ETHYL CHLORIDE AS A GENERAL ANESTHETIC.

To the *Edinburgh Medical Journal* of November 3, 1903, Dr. LUKE contributes his views as to the use of this drug. He believes that the dose of ethyl chloride is a variable quantity, varying with the patient, the nature of the operation, and the length of anesthesia.

It is seldom necessary to employ more than 10 cubic centimeters, and seldom possible to use less than 3 cubic centimeters; but with this latter amount, properly administered, an anesthesia of seventy to ninety or more seconds can be obtained even in adult patients. With young children, one and a half to two and a half minutes can be reckoned on. If the administrator fails to get anesthesia with such an amount in seventy to ninety seconds, it is due far more probably to air being unknowingly admitted than to an insufficient dose.

The rapidity with which anesthesia is induced in some cases is very remarkable, and even startling. If the patient takes deep breaths from the start, consciousness is sometimes lost after the first three or four breaths, stertor commences, and the patient is ready for the knife in twenty-five to thirty seconds.

M'Cardie finds the average time of induction to be 50.9 seconds, and the average length of anesthesia 71.3 seconds.

In his own practice the author has found the average of induction a few seconds longer, but the duration of anesthesia has been correspondingly long.

Luke's longest period of available anesthesia, after complete removal of the inhaler, was five minutes.

After-effects.—Headache and nausea or vomiting are the most common. Anything further is extremely rare, and any faintness or syncopal tendency which is seen is probably due to loss of blood or *vertigo a stomacho* than to any action of the anesthetic on the cardiovascular system.

Of patients anesthetized for short dental extractions during the early part of the day—from 10 to 2 o'clock—the author has found that not more than about one in twenty suffers from sickness. Patients anesthetized in the afternoon seldom do so well as those narcotized early in the day. Sickness is more common where the anesthetic has been pushed, or where some blood has been swallowed. There are some types of patients who are frequently sick or upset after any anesthetic, namely, people suffering from chronic digestive disorder, and schoolboys who eat questionable articles of diet at odd times.

An interval of two, and if possible three or four, hours is desirable between the last meal and the taking of the anesthetic. Sickness does not recur, at most, in more than 30 per cent of cases, and this is considerably less than we see after chloroform or ether. If troublesome, the patient should be directed to lie down in the supine position, and albumin-water, or chloretone (10 grains), administered, and toilet vinegar may be sniffed at. Headache, if it occurs, generally passes off soon, but if not is best treated with a cup of tea or some acetanilid, 5 to 10 grains.

Both during the early stage of anes-

thesia and the recovery stage, the thoughts or dreams of patients are not infrequently of an erotic nature, and this may lead to complications. The same, of course, is known to occur with nitrous oxide.

The Death-rate under Ethyl Chloride.—Patients seem to vary a great deal as to their susceptibility to the vapor. Alcoholics and those addicted to cocaine and morphine require a great deal of the anesthetic, and are scarcely affected by a strong vapor. On the other hand, those who are anemic and weakened by disease are frequently very soon influenced, and as small a dose as three cubic centimeters has been followed by violent tonic spasms, opisthotonos, and cyanosis. Any toxic effect of the drug seems to make itself first felt in the patient's respiratory system. The action there seems to be supplemented by the onset of muscular spasm, which most frequently commences in the masseter muscles, but may spread to the muscles of the tongue, larynx, and thorax. The cyanosis is much accentuated, if not primarily caused, in many cases, by this spasm of muscles at the base of the tongue. This spasm, and also laryngeal spasm, can readily be relieved by tongue traction, supplemented by artificial respiration for a few moments in some cases. The appearance of the patient is extremely unpleasant, and very similar to that of a person deeply under the influence of nitrous oxide. Clonic spasm is usually seen with this anesthetic, and the retraction of the head and opisthotonos is very similar to that produced by laughing-gas. The patient's face looks very swollen, the eyes are usually open, the pupils dilated and fixed, but the pulse usually beats quite well.

Seitz, of Constanz, a dental surgeon, has gone very carefully into the question of safety. He has collected an account of over 16,000 cases, with only one death recorded. This occurred at Innsbruck in 1889. The patient was a laborer, aged forty-one, and died of respiratory syncope. apparently. At the necropsy he was found to have an enlarged and fatty heart and sclerosed coronary arteries. No other case has actually been published, except that of a child, aged 1¾ years, suffering from diphtheritic croup, who died during a tracheotomy. There is no record of a death during a dental operation.

There have been cases recorded in which asphyxial symptoms have appeared and been promptly relieved by suitable treatment.

Luke's general conclusions in regard to ethyl chloride are as follows:

1. It is very rapid in action, and pleasant to inhale.

2. The duration of anesthesia compares very favorably with that afforded by nitrous oxide.

3. It causes no change of color, or cyanosis, under normal conditions.

4. The administration is very simple in technique.

5. Its lower rate of mortality, more agreeable odor, and method of administration, and the possibility of repeating the dose and continuing the anesthesia, make it greatly preferable to ethyl bromide, which cannot be safely readministered at one sitting.

6. The after-effects are slight, if there are any.

7. It is by no means inexpensive, but cheaper than nitrous oxide.

8. It is especially useful when the patient is very young, very old, or anemic.

9. It is extremely portable—a flask with sufficient for ten to twelve cases being readily carried in the breast pocket.

10. It is much safer than chloroform, as safe as ether, and much better adapted for brief operations than either.

New anesthetics are like a new horse, and one is inclined at first to go very gently with them. When the writer first began to try ethyl chloride, about three years ago, he used it "with fear and trembling;" but though familiarity has not bred contempt, he now uses it with confidence, as a tried friend. He has personally administered it in over 300 cases, and has had no reason to regret doing so. One or two patients have given some trouble, from the onset of marked spasms and cyanosis; but as we not infrequently experience both when using nitrous oxide, if one is accustomed to that anesthetic these symptoms are not so disconcerting. He is convinced that ethyl chloride is an anesthetic which needs great care and watchfulness in its administration; and the great rapidity of the onset of anesthesia is calculated to catch napping the uninitiated and inexperienced. But, bearing in mind the rapid elimination, and the fact that, when trouble has occurred, it has always been of an asphyxial and

not syncopal character, one realizes there is a fair margin of safety. And if we meet difficulties, as we are practically bound to do from time to time whatever anesthetic we are giving, a cool head and the precise and methodical carrying out of the usual restorative measures are in all probability all that will be necessary to bring about the happiest results.

X-RAY TREATMENT OF CANCER OF THE UTERUS: METHOD AND RESULTS.

TOUSEY writes in the *Medical News* of November 14, 1903, of the requirements for this plan of treatment and of the results to be obtained. For applying the *x*-rays a prime requisite is a good examining table with leg crutches for a lithotomy position. The patient lies on her back with her hips at the edge of the table, the thighs vertical and legs horizontal, resting on the crutches, which are about 18 inches high. A sheet covers everything but the vulva, and after the speculum is introduced sheet lead is spread over the buttocks and thighs to protect them from the *x*-rays. The speculum most generally useful is Nott's. It is of metal and of the general shape of a bivalve speculum with a duck-bill posteriorly, but with two narrow arms anteriorly which spread apart as they are both separated from the posterior blade. The tissues most usually involved along with the uterus are reached through the anterior vaginal wall in this way. The specula (Ferguson's), made of celluloid, are transparent to the *x*-ray, and are desirable for some cases with extensive infiltration.

The *x*-ray tube ought to be a large and powerful one; the author's are all of 40 centimeters capacity—*i.e.*, intended for use with a current producing a 40-centimeter spark, and should be of medium hardness. By hardness is meant a high degree of vacuum, and all the best tubes are provided with an arrangement whereby the gaseous contents of the tube may be added to when the tube becomes too hard. For these cases the tube and the current should be so adjusted that the bones of the hand may be faintly seen at a distance of two feet from the tube. The author uses a coil with a liquid interrupter to excite the *x*-ray tube.

The distance ought to be about nine inches from the anticathode, the disk in the center of the tube from which the rays radiate, to the nearest exposed surface; and for a beginning exposure the time ought not to exceed five or six minutes of actual *x*-radiation. This will probably have to be interrupted once or twice to allow the tube to cool. The time is generally increased at subsequent treatments until finally this part of the treatment takes twenty minutes, during nearly half of which the *x*-ray is actually shining.

The second part of the treatment is required for those cases, and they are the usual ones, in which there is a fibroid or other tumor of the body of the uterus. The patient may be sitting up, and the *x*-ray tube is placed about nine inches from the surface and directed at the tumor right through the abdominal wall. It is rather better to have the surface of the abdomen uncovered, so that we may judge of the condition of the skin; it ought to become somewhat tanned after repeated exposures, but burns and ulcerations do not seem to do anything but harm. The time of exposure here may be about nine minutes, distributed over different portions of the lower abdomen.

The third part of the treatment consists in the application of the high-tension discharge by means of vacuum electrodes. From one pole of the *x*-ray coil a rheophore passes to an insulated handle in which there is a metallic socket, and in this is fitted a vacuum tube with a bulbous extremity. No connection is made with the other pole of the coil. The free end of this vacuum tube, essentially a Geisler tube, is placed upon the surface of the abdomen over one of the painful spots, and a current strong enough to produce a four-inch spark is turned on. The tube becomes filled with a series of waves of light passing from the rheophore down into the body of the patient, and with absolutely no disagreeable sensation. In moving the vacuum tube from one part of the abdominal surface to another we try to keep it in contact with the skin, as otherwise the patient receives a shower of sparks which are more or less disagreeable. Then again, while this application is being made no one should touch the patient, as she is quite intensely charged with electricity and receives a spark from contact with anything that is a good conductor. The efficacy of these tubes is entirely out of proportion to the sim-

plicity of their construction and application. Of course, we know they have a coil behind them containing a hundred thousand feet of wire and capable of giving a voltage of a million; so after all it is not strange that they should produce very tangible effects.

The results which may be expected are wonderful. The vacuum tubes bring about complete relief from pain, and the entire treatment results in a cessation of the discharge, disappearance of the odor, which in these cases is often most offensive, and a restoration to general health. The fibroid diminishes somewhat in size, and the progress of the carcinomatous infiltration is arrested. Each treatment acts as a general tonic, and the patients often declare that they would be treated every day if they could afford it.

THE REAL PLACE OF ALCOHOL IN MEDICINE.

In the course of an editorial on this subject the *Medical News* of November 14, 1903, sums up the facts as follows:

The true place of alcohol in medicine, then, is as a transient, highly diffusible stimulant, incident to its active portal oxidation, and directly, as an oxidant, for the purposes of clearing the portal circulation and for assisting the hepatic combustion of certain foods, which is accomplished by the more diffusible (highly alcoholic) liquors.

In clearing the portal circulation the active combustion of alcohol acts similarly to that of the fruit acids, which are so popular among hearty eaters for this purpose. For the restoration of appetite and digestive ability, which formerly was afforded by an orange or lemon, the advanced epicure finds the more highly diffusible and combustible cocktail necessary with which to precede his meal.

Medical men can and do make legitimate use of alcoholic liquors for the above therapeutic ends, and by regulating the amounts and varieties, the time of taking, in relation to food, etc., maximum good and minimum evil can be attained, in appropriate cases. Continued tippling and periodic sprees are equally degrading to the body as a whole. The ignorant or rash uses of alcoholic beverages are the chief causes of mischief which is due to them. There can be no doubt but what, all points taken into consideration, the race as a whole would be far better off without them.

The many diseases due to inebriety, it will be observed, are of the degenerative type, and are all due either to hypercombustion (fibrosis, sclerosis) or to suboxidation, viz., all kinds of degradation and degenerations of the brain, nervous, muscular, and vascular systems.

THE DERIVATIVES OF MORPHINE USED IN MEDICINE.

MAYOR and FONTANA (*Revue Médicale de la Suisse Romande*, Oct. 20, 1903) present an interesting study of the pharmacological action of apodionine. They conclude that this substance, which is in reality a chlorhydrate of apoethylmorphine, does not represent a reënforced apocodeine, but that it occupies a position midway between the latter alkaloid and apomorphine. As it does not produce purging in dogs so constantly as does apocodeine, and as it also occasionally produces vomiting, they are of the opinion that it does not represent an ideal hypodermic purgative for therapeutic use. As an emetic it seems to possess no advantages over apomorphine. Of the three bases which were studied—namely, apomorphine, apocodeine, and apodionine—apocodeine was the only one which was found to have a direct depressive effect upon the respiratory center.

THE ACTION OF SODIUM CHLORIDE UPON THE RENAL EPITHELIUM.

In *La Presse Médicale* of October 31, 1903, Dr. ROMME reviews an article on the action of sodium chloride upon the renal epithelium, which has recently been contributed to the *Archives de Médecine Expérimentale* by MM. Castaigne and Rathery. These investigators immersed pieces of rabbits' kidneys in solutions of sodium chloride at a temperature of 37° C., and then prepared microscopic sections of them with a view of determining what changes had been wrought in the renal epithelium. They found that the changes produced varied greatly with the strength of the solution employed, and after many

tests they succeeded in establishing the fact that only a single solution, of which the freezing point was —0°78 C., permitted the epithelium to retain its normal characteristics. Solutions freezing at —0°90 C. caused shrinkage of the epithelium of the convoluted tubules and expulsion of a large part of their subnuclear granulations. Lesions even more pronounced than these were observed when solutions whose cryoscopic point varied from —0°20 C. to —0°30 C. were employed, the cells of the convoluted tubules being swollen to such a degree that they nearly all burst and expelled both protoplasmic granules and nuclei, so that nothing but a series of vacuoles containing here and there a few scattering granules were left to represent the cells. That this destructive action is not due to any toxic properties is shown by the fact that weak solutions produced the most marked lesions. The phenomena are easily explained, however, by assuming that non-isotonic saline solutions injure the renal epithelium by a process of destructive osmosis, and this is the view which Castaigne and Rathery hold. Do these experiments enable us to tell why a diet containing an excess or deficiency of salt will at times give rise to albuminuria in healthy animals and in man? or why an excess of salt will increase the amount of albumin excreted by a patient having Bright's disease, and in some cases cause the development of edema? In answer to these questions Castaigne and Rathery state that in order for the renal cells to act normally they must be bathed in an isotonic liquid, and that whenever the osmotic tension of this liquid is changed by a greater or less concentration of chlorides, the filtering power of the kidney is affected and manifests its injury in the form of an albuminuria.

TREATMENT OF PUERPERAL INFECTION.

BURTENSHAW writes on this subject in the *International Medical Magazine* for November, 1903. He asserts that hysterectomy for puerperal sepsis has never been accepted with much favor. As Davis says, if operation is performed sufficiently early to insure a good result, one can never be certain that the operation was absolutely necessary.

The author refers in this brief paper to the necessity of evacuating pus collections in puerperal infection wherever they may occur.

To neutralize the effects of the germ invasion, it is of the greatest importance to promote frequent and thorough evacuation of the bowels. The consequences of autointoxication from retained intestinal contents, even in health, are too well known to demand elaboration here, but the frequency with which the colon bacillus is found as a complicating factor in septicemia would point to the necessity of keeping the canal clear. The action of the kidneys should be encouraged. Aside from the fact that urinary infection in the puerperium is most frequently due to the colon bacillus (Webster), the necessity of promoting free diuresis will be apparent. No more effective agent for this purpose is at our command than the saline solution.

The administration of antistreptococcic serum has been disappointing. Marmorek himself long since practically repudiated the claims he advanced in its favor in 1895, although recent reports from Germany show that it is still being used. Good results have been reported of late from the use of Aronson's immunizing serum, but available data on the subject are scarce. The results of the investigation of antistreptococcic serum, made by the committee appointed by the American Gynecological Society in 1898, have been frequently quoted. This committee collected reports of all cases of puerperal sepsis in which the serum was used from the date of its introduction, 1895, to April 1, 1899. The total number of cases was 352, the mortality, in which bacteriological examination was made, 32.69 per cent; in cases in which no bacteriological examination was made, 15.85 per cent.

The intravenous injection of formalin solution, brought forward by Barrows during the present year, has met with little, if any, favor.

Pryor's method, of opening the posterior cul-de-sac and packing the pelvic cavity with 10-per-cent iodoform gauze, the author considers an excellent one. It is well known that in all forms of sepsis, and especially in that of the puerperium, Pryor's investigations have shown that the iodine reaction in the patient's urine can be demonstrated within two hours of the introduction of the gauze. It would

appear that that author's work has been along lines that will yield exceptionally satisfactory results in the future.

The favorable results that have been obtained from injections of normal salt solution, whether intravenously, subcutaneously, or by the bowel, are so well appreciated that it would appear hardly necessary to refer to them here. It is known that in no other affection do the red corpuscles of the blood suffer destruction so constantly and to such an extent as in puerperal sepsis, and in no other is the loss of hemoglobin so pronounced. In a great majority of such cases, also, leucocytosis is marked. At the same time, even in very grave cases of puerperal septicemia, the existence of streptococci in the blood cannot be demonstrated. This is not proof, however, that the toxins generated by these germs do not circulate in the blood current. It is still a mooted question as to the manner in which salt solution exerts a favorable influence in these cases. The term "lavage du sang," or washing of the blood, would appear to be particularly significant in this connection. There can be no doubt that the salt solution performs this function. Whether or not it exerts a destructive action on the germs themselves is not known.

THE SUPRAPUBIC OPERATION FOR THE RADICAL CURE OF VARICOCELE.

THORNBURGH (*Medical Record*, Aug. 29, 1903) contributes his views on the suprapubic operation for the radical cure of varicocele and makes a report of eighteen successful cases.

The rule laid down in "Tripler's Manual" has been followed—*i.e.*, operate on those cases in which the varicocele is as large or larger than the sound testis. The suprapubic route seems by all means to be the better. The field of operation can be more readily rendered aseptic; a dressing once properly applied will remain indefinitely and will not be affected by the movements of the patient; primary union is a practical certainty. It appears to the writer that there are no advantages whatever that can be urged in favor of the scrotal incision.

The morning before operation the patient is bathed, put to bed, the pubes shaved and scrubbed with tincture of green soap and water, followed by rinsing with ether. A nurse, with sterile hands, now rubs in four grammes of oleate of mercury over a space completely covering the field of operation. A sterile gauze dressing is saturated with oleate of mercury, applied to the skin and bandaged in place, first covering dressing with oiled silk. The patient is given a dose of salts, which is followed by a soapsuds enema at 6 A.M. next day. No breakfast, not even water, allowed after 6 A.M. Anesthesia commenced at 9 A.M. The dressing is removed, and an assistant rescrubs the field with tincture green soap and water; ether is poured over and rubbed in, followed by alcohol—about 30 cubic centimeters of each. A one-per-cent solution of bichloride is now poured over the field. The finger of the operator is introduced into the external ring and a nick made with the knife directly over the tip of the finger. With this nick as a landmark an incision three centimeters long is made parallel to Poupart's ligament. The deep fascia is cut through with the knife, and then a little blunt dissection brings the cord into view. No blood-vessels of any moment are encountered, oozing being checked by hot normal salt solution. The sheath of the cord is picked up between mouse-tooth forceps and torn open. The finger of the operator is introduced, and the whole cord easily raised from its bed and brought out of the wound; a ligature carrier is then placed beneath it. The vas is recognized by its white appearance and cord-like feel, and is separated from the rest of the cord downward to within an inch of the testis. The testis can be readily brought into view by gentle traction on the cord. The vas is separated from the vessels for about 6 or 7 centimeters in an upward direction also. The vessels are tied with No. 3 cumolized catgut ligatures, the vessels between them (5 to 6 centimeters) excised, the stumps inspected for oozing, the end approximated, and the ligatures tied to each other, thus forming support for the testis.

The cord and vas are dropped into the bottom of the wound and the wound closed by continuous retention and approximation sutures.

The wound is covered with two or three thicknesses of naphthalin gauze, then ten or twelve thicknesses of plain sterile

gauze, and this held in place by adhesive straps. A two-inch thickness of absorbent cotton is placed on top, and the whole held in place by a spica bandage.

At the end of twelve days (unless pus is indicated) the dressing is removed and the suture found absorbed. A little collodion is painted on the line of incision, the patient allowed up and returned to duty in three or four days—*i.e.*, as soon as there is no tenderness on palpating cord and testis. The patient is given a suspensory bandage immediately after operation and told to wear it six weeks.

In every case treated by this method primary union took place, and in one only did a drop of pus appear. A cure resulted in every case. The report covers eighteen cases in detail, and the writer states that since the article was written fifteen additional cases have been operated upon with equally satisfactory results.

SUBURETHRAL ABSCESS IN THE FEMALE.

During the past three years MILLER (*American Gynecology,* August, 1903) has observed three cases of suburethral abscess. The author's three cases were essentially chronic when they came under observation. Calculi had been found in some cases, and could have caused suppuration by lodging in the urethra, but this cannot always be proved, since they may have been formed from the urine primarily in the sac. Gonorrhea was an existing cause in one of the author's cases, and may have been the cause in a second case, while in the third instance the sac was probably formed from a diverticulum. Two of the women had borne children, while the one in whom the abscess originated in the diverticulum had not.

The symptoms are principally painful urination and a sense of heat and aching distress in the urethra. In cases of abscess discharging from the internal urethral opening, frequent urination and tenesmus are noted, becoming more marked, according to Skene, the nearer the sac is situated to the neck of the bladder. Pus is discharged, sometimes suddenly; at other times it oozes constantly from the urethra and may be mixed with urine. In one of the author's cases it was discharged into the urethra during coitus.

By making pressure through the vagina downward along the urethra, the sac can be emptied readily. Palpation will detect the thickened edges of the wall of the urethra, if the trouble has followed periurethral inflammation. On introducing the urethral speculum, a congested mucosa is revealed, and on withdrawing it pus suddenly passes into the urethra as the abscess orifice is passed. A bent probe can be introduced and the sac further explored. Urethrocele and sacculation of the middle third of the urethra can be easily confounded with these abscesses. There is the same painful urination, and there may be loss of control of the bladder, but a probe will disclose the small abscess opening and anterior urethral wall in its proper position. Dilatation of the urethra and passage of the finger is of special diagnostic and therapeutic value.

In the cases in which the urethra can be thoroughly dilated, and the abscess opening enlarged, so that the pus can escape readily, spontaneous cure frequently occurs, but when the condition is the result of periurethral inflammation, this is not always feasible. The best treatment probably consists of incising the abscess sac, after which a retention catheter should be worn, or the bladder at least emptied at regular intervals with a soft-rubber catheter, in order to prevent infection of the wound.

Small incision was all that was necessary in the author's three cases.

With thorough incision and cleanliness of the sac and vagina, and employment of the catheter, most cases will close within eight to ten days.

SKIN-GRAFTING FOR THE RESTORATION OF THE EYELID.

Skin-grafting for the restoration of the eyelids DODD states (*Journal of the American Medical Association,* Oct. 17, 1903) differs materially from that in other parts of the body. The prime objects in operating are cosmetic and restoration of function; to attain these the part must be freely movable, and not differ markedly in color and appearance from the normal lid. In addition, the field of operation is movable and uneven, making the result more difficult to obtain.

The primary causes for operating are

usually cicatricial ectropion, produced by burns, wounds, and destructive skin lesions, as blastomycosis and lupus; or to fill in a defect after removal of a tumor of the lid. In the cicatricial cases the skin is destroyed, usually for a large area, and is so devoid of the normal blood-vessels that nutrition is the problem to be considered. The condition is very different when the cicatrix is entirely superficial, and can be cut through to form a floor for the graft.

The graft of the upper lid must be as light as possible, so as not to interfere with the movement or press heavily on the eyeball. The lower lid tends to draw away from the eye, and some form of support must be provided for the lid margin. The choice of skin graft to be used must be determined by the individual case.

The pedicle graft has fallen somewhat into disuse, but it has a place which cannot be filled by either the Thiersch or the Wolfe grafts. The advantages of the pedicle graft are that when placed in a region devoid of normal blood-vessels it still has a source of nourishment. It has the firmness and substance very necessary to the lower lids when the muscular tissue is atrophied, and especially when it is necessary to remove the whole thickness of the lid, as in tumor. Shrinkage is at a minimum, and should not be one-third to one-quarter of the original size. Its appearance also closely resembles the skin which it replaces. The pedicle grafts are too heavy for the upper lid. In some cases the pressure of the upper lid, formed from pedicle grafts, has been sufficient to produce corneal ulceration.

The greatest fault of the Wolfe graft is its uncertainty. Good results have been obtained at the time of operation, but have completely disappeared a few weeks or months later. In the best results the graft did not retain more than half the size soon after the operation. This does not refer to the size of the graft before cutting, which should be four or five times the size needed. In order to avoid shrinkage the author has made his grafts as thin as possible, and finds his results correspondingly improved. The author stretches a graft and pins it inside-out on a piece of sterilized board, and then with scissors and forceps removes all the tissue possible. Grafts treated in this way have little left but the epidermis, and the shrinkage is comparatively small. The color of these grafts remains whiter than the surrounding skin, in some cases for years—often always. When used on the lower eyelid they have given satisfactory support, and for that reason are to be preferred to the Thiersch graft. They are too heavy for the upper lid, and should not be used except under special conditions.

The shaving or Thiersch graft is probably the easiest to handle, and seems to grow anywhere if a raw surface is prepared for its reception. The best method of preparing the shaving graft is to have the skin perfectly dry, and to remove the shaving with a dry razor. The author never has any trouble in makng them grow if the surface is protected from the secretions of the eye, and the lid is kept immobilized until the adhesions take place. On the upper lid the Thiersch graft always serves the purpose well. By cutting through the cicatricial tissue a smoother surface is obtained, and a light graft is no obstacle to a marked improvemen. It is this which gives them the preference over the other forms of graft for the upper lids. It has been demonstrated that the quicker the circulation of the graft is established, after being put in position, the less the subsequent shrinkage. For this reason the field in which the graft is placed should be kept quiet and as smooth as possible. To accomplish this the lids should be stitched together when operating on the lower lid. A better plan to keep the upper lid in position is to put sutures through the edge of it, and fasten them to the cheek below with adhesive strips. This stretches the lid better, and gauze can be put along the edge to take up the secretion, which is frequently very profuse and troublesome, due to the previous exposure of the conjunctiva.

THE SURGICAL TREATMENT OF GASTRIC ULCER.

MONRO (*Boston Medical and Surgical Journal*, Aug. 20, 1903) urges more early surgical intervention in the treatment of gastric ulcer than is commonly practiced. Fully sixty per cent of the cases come too late from a surgical point of view. Ulcer of the stomach is more and more becoming a disease to be treated by the surgeon,

not late but early, before the starvation, the long suffering from pain, dyspepsia, and fermentation-absorption have reduced the patient until he is beyond surgical help; before he is anemic from persistent bleeding or peritonitic from culpable delay. Much of the complicated technique could be eliminated were it possible to give the surgeon his cases when he wishes and not when the physician is compelled.

Three-fourths of the diagnoses by chemical analysis are of no practical value when it comes to cases that would be classed as surgical by a surgeon. The important thing for the patient and the surgeon is not to know that there is an ulcer, but to know that that ulcer is doing harm where it is situated; whether the ulcer symptoms may or may not be due to adhesions; what contractions there are consequent upon its healing; whether the base of the ulcer is already undergoing malignant degeneration; whether the ulcer is on one side or the other of the pylorus; whether the next hemorrhage may not be fatal, as is often the case in ulcers medically treated.

No hard and fast rule can be drawn as to what cases are medical and what are surgical. Many patients with first attacks without serious hemorrhage, who can give up the time for prolonged rest, will recover permanently under medical treatment. The following types are best considered as surgical: Probable cases of relapsing acute hemorrhage; cases with hemorrhage if persistent and causing anemia; perforation; recurrent ulcer, pure and simple, attended with dyspepsia and starvation; pyloric obstruction; adhesions following ulcer or independent of it. Scar contraction of the body of the stomach. Some cases of intractable dyspepsia, perhaps originating in an ulcer.

THE SIGNIFICANCE OF ALBUMIN AND CASTS IN SURGICAL PATIENTS.

MUNRO *(Medical News,* Sept. 12, 1903) makes a report of an investigation to determine the prevalence of albumin and casts in the urine of recent surgical patients at the Boston City Hospital. He believes that it is extremely doubtful if the presence of temporary albumin influences the immediate history of patients suffering from surgical diseases.

Five hundred cases showing albumin and casts have been roughly analyzed. Altogether 4185 cases were considered. Of these, none that showed obvious renal degeneration or glycosuria were included; nor were patients suffering from genito-urinary diseases, burns, erysipelas, or similar diseases included. Thirty-five per cent of all patients treated in the surgical wards showed signs of renal trouble. Practically every form of injury and disease is included in the present 500 cases, the majority being of serious nature. These patients with few exceptions were etherized, yet there is nothing to indicate that any renal damage was inflicted by the anesthetic.

The quantity of albumin varied from the slightest trace to one-eighth per cent. In 16 cases one-fourth per cent is recorded. In about half the cases casts are definitely recorded, probably less than the actual proportion. Ten per cent of the cases occurred in children under fifteen years of age, being relatively and actually higher than anticipated, as only eight per cent of all patients treated at the hospital are under thirteeen. In forty-four per cent of the cases the ages ranged from sixteen to thirty-five, the time of life when albumin, at least in non-surgical patients, is supposed to be comparatively rare. Between thirty-five and sixty years of age thirty-six per cent were found, and ten per cent over sixty.

Of the 500 cases tabulated, 63 died. Casts were absent or not seen in thirty per cent of these fatal cases. With two possible exceptions, the fatal termination seems not to have been affected in the slightest degree by the urinary conditions.

It would seem, then, that we should expect evidence of renal irritation in over a third of the surgical patients found in a municipal hospital. The mere presence of a trace of albumin, with or without hyaline or granular casts, unattended by other evidence of renal damage, should not influence the prognosis in surgical disease or operation. Albumin and casts alone are apparently no contraindication to the administration of ether. The age at which we must expect albumin and casts in surgical patients is under thirty-five in over half the cases. The proportion in young and otherwise healthy children is probably as great as in adults.

THE EFFECT OF ERYSIPELAS UPON ATROPHIC RHINITIS.

SOMERS (*Medical News,* Aug. 29, 1903) reports a case of atrophic rhinitis which was apparently greatly benefited by an attack of erysipelas.

The case was that of a male, aged thirty-eight years, who had always been troubled with dryness of the nasal chambers and pharynx as long as he could remember, and especially since his tenth year. The case presented the usual picture of atrophic rhinitis without involvement of the sinuses, that is so frequently seen. Treatment extending over a long period of time seemed to have but slight temporary effect, unlike the results usually obtained in the larger number of patients suffering with a similar condition.

The patient received a blow over the right eye, only sufficient to barely break the skin, and within twenty-four hours erysipelas developed over the bruised parts and rapidly involved the face and neck. The features became unrecognizable, abscesses developed on each of the upper and lower lids, and a portion of the lateral cervical glands suppurated. The mucous membrane of the nasal interior was also involved, while the pharyngeal mucosa became dry and fissured. The attack of erysipelas ran the usual course, remaining localized to the head, face, and nasal chambers, and the patient was free from all symptoms of the disease after seventeen days. A careful examination a few days later showed that the ozena had entirely disappeared, the nasal mucosa was in part covered with but few crusts and easily removed, while the necessity for the removal of the inspissated secretions had entirely disappeared. The lower and middle turbinals on each side were still shrunken, but they presented a more healthy appearance, inasmuch as small areas of mucous membrane more nearly approached the normal, the nasopharynx and pharynx still being in part crusted and dry, but in no degree comparable to their former condition. No treatment was advised except occasional cleansing with an alkaline solution.

After nearly a year, the nasal mucosa remains somewhat shrunken and atrophic in patches over the turbinals, but is elsewhere apparently normal, and the healthy areas are increasing in size; the secretions are practically normal, and while there is occasional crusting, it produces no obstruction and absolutely no offensive odor is discernible. The upper pharynx shows in a marked manner the improvement, as it is no longer dry, fissured, and covered with adherent secretions; but while the submucous tissue remains atrophied, the epithelium has been fairly well restored, and except for a slight degree of dryness due to the diminished secretions, it no longer is the source of the previous annoyance.

While one could hardly suggest that ozena should be treated by streptococcus cultures as a routine measure, yet in a small class of cases in which treatment has failed to control the ozena, and in which the patient is obliged to desist from active business or social relations on account of the nasal condition, it would seem that the injection of Coley's fluid, for instance, would possibly be productive of some material benefits.

AN EASILY DETACHABLE PLASTER-OF-PARIS CAST.

BECHTOL (*Journal of the American Medical Association,* Sept. 5, 1903) describes a cast which has been used by him on about forty cases with entire satisfaction. It meets all the requirements of the modern treatment of fractures, and has the double advantage of ease and rapidity of both application and removal. It is especially suited to Colles's fracture, because of the ease with which such a perfect fitting splint can be made and the readiness with which it can be removed for inspection, massage, and hot applications.

For convenience a cast of Pott's fracture is described. The foot and leg are covered with a stocking or sheet cotton, and a Gigli wire saw applied in the median line, anteriorly and posteriorly—these to be held in place by an assistant, who also holds the fractured leg in the proper position. A few turns of the plaster bandage are then taken around the leg to hold the saws in place. A third saw is then applied along the sole of the foot and secured by a few turns of the bandage. The assistant can now busy himself with keeping the parts in proper position and alignment. The cast is then completed by applying successive turns, rubbing each turn smooth until it is in the closest possible contact with the one directly un-

der it. It is well to make this cast a little thicker than the ordinary circular cast, and care is necessary to make the portion over the foot and around the heel of equal strength as the rest of the cast. The only precaution necessary is to keep both ends of each saw free and avoid bending the saws at a sharp angle. By the time the last bandage has been put on it will be hard enough to saw. It need not be dry. A suitable handle or a small nail is attached to the loop in the end of the Gigli saw, and by pulling the saw steadily until it moves freely the cast can be cut through in about ten seconds, leaving two straight edges. An ordinary roller bandage is put around the cast while it is still in position on the leg to hold the two halves together. If a stocking is used it must be split with a pair of scissors before the cast is removed, and it then forms a good lining. If sheet cotton is used the leg should be covered by a new layer before reapplying the cast, to take up the space occupied by the old cotton and to form a comfortable lining.

ESOPHAGEAL SURGERY—SUMMARY.

The esophagus, more intolerant of violence than even the urethra, requires care and delicacy in surgical work. Do not, says MIXTER (*Boston Medical and Surgical Journal*, Aug. 27, 1903), even examine too long at the first sitting if the instrument does not pass easily. Too prolonged probing may send the patient home with a stricture that is tightly closed by swelling, and the result may be serious.

Of the chief causes calling for interference, congenital malformations are the most puzzling. Existing for years they make their presence known suddenly. In a case of an exaggerated form the trouble was thought to be due to the ten-year-old boy having swallowed a small metal disk when he was four years old. Death followed gastrostomy. On autopsy there were discovered two tubes, one reaching from the pharynx nearly to the stomach, the other from the stomach nearly to the pharynx, with only a small opening between them about three inches from the stomach.

Such a case might be cured in a manner mentioned later on under the topic of cicatricial contraction.

The ideal treatment in case of a congenital pouch if it can be reached is excision and suture. This restores the function perfectly.

A palliative treatment in case of a pouch is the passage of a bougie. The patient may be given a large bougie and taught to apply it for his own comfort. Unfortunately, bougies of the kind required are apparently obtainable only from Paris. They are woven like urethral bougies, with olive tip, and polished. Some are loaded with fine shot. The largest sizes should be at least three-fourths of an inch in diameter.

To find the lower opening, almost always on one side of the canal, it is well to use a bougie bent at a slight angle, or even of a bayonet shape, so that the point will hug the side of the canal. A whalebone stylet, bent to the proper angle by heat, may be forced down into the hollow bougie. It should be remembered, however, that even these flexible instruments may inflict fatal injuries.

The bulb probang is a useful instrument for exploration and diagnosis, but is not to be recommended for dilatation.

In case of impacted foreign bodies in the esophagus, so much has been written that one need only mention the great advantages of esophagotomy or gastrotomy in their removal, over prolonged or violent attempts with forceps, coin catchers, and similar instruments.

The removal of foreign bodies with suitable constructed esophageal tubes or specula and forceps is often most successful in the hands of the expert laryngologist. This should always be tried if the right man and instruments are at hand.

Malignant disease of the esophagus is the most frequent cause for seeking surgical aid. Averting starvation and relieving the patient is about the only thing that can be done. If the growth is high up, it may be removable. In this case the lower end of the esophagus is brought into the lower angle of the wound.

Dilating the stricture is the most common method of treatment, and is the most satisfactory in many cases, especially if the food is introduced into the stomach at the same time. In many cases there is hemorrhage or irritation caused by every introduction of the bougie, and it is in these cases that Symond's method of permanent tubage is of great help. The tube is introduced over a small bougie as a

guide, and is left in for a week or two, the patient swallowing liquids easily until the tube becomes foul and stopped.

It should be remembered that a pouch almost always forms above a malignant stricture, hence the passage of a straight instrument may not be possible. For impassable or very irritable strictures of this sort, esophagostomy or gastrostomy is demanded. Most satisfactory results have come from esophagostomy in cases where the disease has been high up.

Of syphilitic strictures there is little to be said except that they are far from common, and should be treated with appropriate medication and dilatation.

Cicatricial strictures of the esophagus, the result generally of swallowing strong acids, sometimes alkalies, are among the most common and obstinate lesions of this canal that the surgeon is called upon to treat. They are generally multiple and difficult to treat, often with several acquired pouches. Constant dilatation will serve to keep the canal patent, but often the canal is tortuous and even impassable to the smallest bougie. Sometimes an instrument may be passed upward from the stomach through a gastrotomy opening, but it is by no means easy. It is in such cases that the method of Abbe—sawing through the stricture with a string—is of the greatest benefit. By this method most desperate and apparently hopeless cases of multiple stricture both in children and in adults have been relieved. Such cases have been kept living the remainder of their lives dependent upon a tube and tunnel in connection with a gastrostomy opening.

Gay, in discussing Mixter's summary, calls attention to the diagnosis of foreign bodies in the esophagus, since many physicians have never met with the accident.

The clinical picture of a person with a foreign body lodged in the esophagus once seen can never be forgotten. Depressed, anxious, debilitated from the lack of nourishment, dreading to make the effort of swallowing, and accomplishing that function only with great difficulty and after repeated trials, locating the tender or painful point definitely, and always in the same place—these symptoms point very strongly to the pressure of a foreign body in the gullet. The diagnosis is complete if it can be confirmed by an examination with an ivory-tipped bougie or similar instrument. Unfortunately many foreign substances elude the peculiar impact of the bougie, and thus little or no aid is to be obtained in that manner. The above symptoms, however, if severe and progressive, justify an exploratory operation.

The *x*-ray furnishes unmistakable evidence of the presence of certain substances in this part of the body, as well as in every other. False teeth, pins, needles, and other metals are readily shown by these rays, and thus give the benefit of a positive diagnosis.

Gay thinks that little dependence can be placed upon bristle and other probangs for the removal of foreign bodies from the gullet. They sometimes succeed but oftener fail in accomplishing the object. He once removed a large piece of turkey bone and meat with the bristle probang, twenty-four hours after its introduction. In a case of a child three and a half years old, a careful examination under chloroform failed to reveal any foreign body, although the symptoms pointed strongly to its presence. Operation was refused. Eight months after the supposed accident the boy vomited a pewter quarter of a dollar. All symptoms, including a persistent hoarseness, soon after disappeared, and the boy was perfectly well.

In regard to the method of doing esophagotomy the only point especial attention is called to is the use of some metallic guide in the esophagus. The great advantage of this sort of an instrument over a flexible one is that it can be more readily introduced, can be manipulated and controlled at will, and hence made prominent at place of incision of the esophageal walls. The ordinary uterine sound answers the purpose very well, especially in children, but anything having the necessary curves and stiffness will do.

In a thin neck, free from edema or swelling, the operation for opening the esophagus is not a difficult one, but under opposite conditions it may be very difficult. Hemorrhage usually gives little or no trouble, and often no ligatures are required. Chloroform probably gives less danger in operations upon the esophagus, as well as in those involving the trachea. By its use there is avoided the spasm of the glottis and free accretion of mucus, which at times threaten to drown the patient.

SYPHILIS AND MARRIAGE.

Except in rare cases, according to Marshall's study of the statistics of Tamouski, Fournier, and others (quoted in *Treatment,* August, 1903), syphilis is only a temporary cause of prohibition of marriage.

Three or four years after the onset is the time given by Fournier as the minimum time before marriage can be sanctioned. Hutchinson gives two years.

The absence of lesions requires little comment, but Cullerier has reported cases to show that the fetus can escape infection even if the father is in a contagious state.

Relapsing erosions of the mouth and penis are especially dangerous. The first pregnancies are abortions; later ones end in the birth of syphilitc children; after a time healthy children are born. Exception has been made to this universal law of Diday owing to the fact that a syphilitic child is sometimes born after a healthy pregnancy; but here there may be the possibility of another father.

The period of immunity since the last signs of syphilis should coincide with the suspension of treatment. This, according to Fournier, should be from one and a half to two years, during which time no treatment has been given.

In severe cases the time of probation should be prolonged. On the other hand, it is a mistake to relax the other rules because of the mild character of the disease, for it is well known that cases originally benign may be followed by severe later symptoms. Fournier's analysis of 84 cases of locomotor ataxia shows this well, no less than 74 cases occurring after benign syphilis, but such results are probably due to insufficient treatment.

Treatment by the intermittent method is advised by Fournier for three or four years. Chronic disease, he argues, should be dealt with by chronic treatment.

If signs of syphilis appear after marriage, the lesions should be cauterized with acid nitrate of mercury. A severe mercurial treatment should also be undertaken. Pregnancy should be avoided.

If the wife is pregnant, but has no signs of syphilis, the course to adopt is a matter of opinion. If she has had previous abortions, mercurial treatment should be given. If it is a case of first pregnancy, the course of action depends on the age and quality of the disease of the husband and on the treatment he has undergone.

The conditions being bad in the husband, mercury should be given to the wife in small doses.

If the wife is contaminated and pregnant, treatment of the mother often prevents abortion, and may lead to the birth of a healthy child. Fournier is of the opinion that there is no evidence that mercury, given in moderate doses, ever causes abortion.

ANASTOMOSIS BY A SIMPLE METHOD.

A modification of Halsted's method of anastomosis devised by HEPPERLEN *(Western Medical Review,* Sept. 15, 1903) is said to possess the advantage of simplicity.

Instead of an inflated rubber cylinder in the bowel over which to stitch, a gelatin cylinder is employed. This serves as a firmer support, takes a very short time to introduce, and when the work is completed, absorbs, leaving no after-trouble. The emergency box of the practitioner can have a supply of these different-sized cylinders put up in aseptic packages ready for immediate use, saving the time usually lost in sterilizing and making preparations before the operator can begin the anastomosis. The same material may also be used for gastroenterostomies or gall-bladder work by having it molded in requisite sizes.

When the capsule is placed in position there are inserted a few interrupted sutures through all the coats of the bowel to hold the parts in coaptation. The work is then completed with an unusual suture.

A fine intestinal silk twenty-four inches long, doubled, with a needle on each end, having the knot where the ends of the silk are tied in the center, is employed. The first suture is started under the mesentery attachment, a needle being inserted with each hand at the same time through the two outside coats of the bowel, an eighth of an inch from the cut margins, picking up a loop about one-twelfth of an inch in length, according to the method of Lembert. The parts are drawn together and tied at every stitch. This is continued until the bowel is completely encircled. The mesentery opening is closed with the same suture, care being taken to pass the needles under the small vessels in the peri-

toneal coat so as not to constrict the blood-supply more than is necessary.

This stitch can be introduced practically without handling the parts in about one-fourth to one-eighth the time required for any other, and the bowels are also held more firmly.

An end-to-end anastomosis may be performed in the foregoing manner in from five to ten minutes, or as quickly as a Murphy button could be introduced. Very little suture material is required. The parts are held so firmly that escape of the bowel contents is impossible. It is readily seen, also, that the same method can be used for any other internal anastomosis.

DAVISON LIGATURE—ADVANTAGES IN HERNIA AND OTHER LAPAROTOMY CASES.

From his experience in seven inguinal hernia cases, and in eleven other laparotomy cases, HAMILTON (*Western Medical Review,* Sept. 15, 1903) deems the Davison ligature to have not a few important advantages.

There is certainty that all suture or ligature material placed in the wound has been made absolutely sterile by boiling in water. The layer approximation of tissue is accurate. When healing is completed the buried sutures are easily removed. Capillary drainage from each layer is permitted. Application is rapid. There being no perforation of the skin by sutures, there is only slight scarring. All the advantages of permanent buried suture are obtained through the Davison ligature, without the danger of further irritation and extrusion of the knot. There are also the advantages of non-absorbable suture without the danger of sepsis from the suture, and without producing a nidus for septic germs from the blood current during absorption.

The suture material must be coarse, selected Spanish silkworm-gut at least thirteen inches long and without defect or flaw. For convenience of identification of the different layers of sutures it is best to color them black with silver nitrate, blue with alcoholic solution of methylene blue, and red by alcoholic solution of carbol fuchsin.

The feature of the ligature is a simple reverse bow-knot, tied at each end of the wound, four or five inches from the end of the strand, thus allowing the end of the strand to protrude from the angle of the wound. The special instruments required for applying this ligature are two pairs of smooth tissue forceps, ground to a narrow point.

This method of suture can be used in any laparotomy, in which there are no provisions for a drainage and in which the incision is in a straight line.

In the closure of abdominal sections the wounds are closed by suturing each layer with a continuous silkworm-gut suture, the ends of which are left out at the angles of the wound, to be removed by traction after healing is complete. The suture in the strongest layer is tied by a reverse bow-knot four or five inches from the end of strand, and introduced in a firm place in the fascia, back from the edge of wound. The wound is closed by the continuous herring-bone suture. At the last stitch the suture is drawn tight, grasped by a smooth-pointed dissecting forceps at its exit from the fascia, while another bow-knot is tied below the point of forceps. With practice this can be done without a particle of slack being left in the suture. It can be tied in this manner as closely as in the ordinary method of tying a continuous suture. This layer, securely fastened, takes the tension entirely off the other layers, hence it is not necessary to use the reverse bow-knot in the other layers.

The skin is closed by the Halstead subcuticular stitch of silkworm-gut.

The elasticity of silkworm-gut makes the sutures very nearly straight in the tissues by the end of a week, so that it is very easy to remove them by traction. In removing these sutures, the patient relaxes the abdominal wall by elevation of the thighs and shoulders. The ends of the ligature are grasped in an artery forceps, protected by a bit of gauze, and wound up close to the skin. Simultaneous traction is gently made on forceps used like the handle of a corkscrew, which unties the knots. One end of the stitch is cut short. The ligature is removed by traction on the other end. The other sutures are removed by cutting off one end of strand and by traction on the other end with the protected forceps.

The same method of suture can be applied to any of the standard operations for the radical cure of inguinal herniæ. The

sac is closed by a continuous mattress suture of silkworm-gut, the ends being shirred up, making a sort of double purse-string suture. The lower end is marked by a knot for identification and the ends are tied together and brought out of the upper angle of the wound. This suture is removed at the end of a week by pulling up the lower strand and cutting it short and then drawing out the upper fragment.

In the operation for herniæ in which Poupart's ligament is imbricated over the conjoined tendon, behind the cord, a simple continuous basting stitch tied at either end is used. The suture with the reverse bow-knot tied at one end is passed through Poupart's ligament about one centimeter from its free edge, close to the cord penetrating the ligament from the outside and emerging from its internal surface. The suture is next carried across the wound behind the cord, and penetrating the conjoined tendon at the same level and distance from its edge, and emerging on the peritoneal side of the conjoined tendon. The suture is then returned through the same tissues in the opposite direction, one centimeter below the first perforation, completing one unit of the continuous basting or sailor stitch, which, when completed, is tied in position with the reverse bow-knot. The free ends are allowed to extend out at the angles of the wound. This is the strong layer, and when sutured firmly takes the tension from the other layers.

The fascia of the external oblique muscle is sutured to the shelving edge of Poupart's ligament over the cord with a continuous herring-bone stitch, the ends, without being tied, projecting from the angles of the wound. The skin layer is closed by the subcuticular suture as described before.

CICATRICES—NEW TREATMENT.

The superficial scar can often be much improved by massage if there is tension and wrinkling, while for the deep atrophic scar, remarks VARNEY (*International Journal of Surgery*, October, 1903), with its whitish new formation contrasting with the normal skin, little can be done aside from excision.

The histological changes of the skin however, under *x*-ray stimulation, are now clearly demonstrated by many investigators. These are found to consist, under mild applications, almost exclusively in a cellular action. Elastic, muscular tissue and cartilage are affected only when the rays are used to an intense degree.

In the application of the rays in pitting following smallpox, the best results are obtained if the case can be irradiated before the inflammation has subsided around the pocked area. All the cases treated thus far by the reporter have been discharged from the hospital in at least two weeks, so that while the results were most gratifying after this lapse of time, it is believed to be possible with *x*-ray treatment, as soon as the pustule begins to heal, to completely fill up the very deforming pit.

In applying the rays to the remaining pits, it is important that the patient be given mild irradiations, increasing daily until symptoms of inflammatory reaction develop. It is at this stage that rapid proliferation of the epithelial cells is produced, at which time treatment is diminished, continuing mild irradiations until the pocked area is filled or healed up above the surrounding skin with epithelial cells. If the hand is passed over the area treated at this time, a distinct grating sensation is experienced.

As the erythema or inflammatory condition subsides, the pocked area is not only filled but assumes the color of the normal skin. This is permanent, and there is no harmful effect upon any of the glandular functions of the skin, aside from the falling out of hair, which returns.

The same gratifying results are obtained in cases of acne with no recurrence of the disease, as well as with scars of old tubercular conditions, keloids, burns, and the like.

Better results can be obtained in the treatment of old scars, as from burns, by first scarifying the scar tissue and then applying the rays.

Great care must be exercised in this treatment by watching the amount of stimulation that is being produced. If an alarming inflammation occurs, the patient should be seen daily. Mild treatment should be continued which will check this condition much more quickly and with less destruction than if left without treatment.

CYSTIC TUMORS OF THE MAMMÆ TREATED BY FORCIBLE MASSAGE.

Cutting operations are unnecessary for the removal of cystic tumors of the breast, and such patients SNOW finds (*British Medical Journal,* Oct. 17, 1903) can be relieved without mutilation. The breasts of these patients are full of a decomposing and more or less unhealthy milk. The women are single or have not borne a child for a long term of years. By forcibly massaging out this milky secretion under anesthesia the trouble at once vanishes. When ruptured, no serious inflammatory reaction follows. There is no pain, and no suppuration. The patient should be anesthetized, the cyst ruptured subcutaneously, and the viscid yellow or greenish-black contents squeezed from the nipple until no more can be expressed. The breast is a little sore for a day or two, but this promptly subsides, and no further treatment is required. This treatment should not be employed if there is any suspicion of malignancy. The author has used this method in ten cases, and so far as known there has been no recurrence.

URINATION—ABNORMAL FREQUENCY OF URINATION TREATED WITH EPIDURAL INJECTIONS.

Thirty-three cases of frequency of urination treated with epidural injections have exhibited results that VALENTINE and TOWNSEND (*Medical Record,* Sept. 26, 1903) call encouraging. Twenty-five patients were removed before a full history could be obtained, but in eight cases more details were obtained. The injections in no case were followed by untoward results. The frequency with which the bed and clothing were wet, or the abnormal frequency of voluntary urination, was either reduced or entirely checked, at least for the time being.

The injections are made into the sacral canal between the periosteum of the vertebræ and the dura mater. The canal is reached through its opening in the sacrum, but great care must be taken to locate the exact place. It should be remembered that the sacral hiatus is not in the line between the nates when the patient lies on his side.

The patient may be placed on either side, most comfortably on a table sufficiently high to render excessive stooping of the operator unnecessary. When the epidural injections are made for disturbances in urination, it is well to place the patient in a species of Sims's position, with the knees drawn as tightly as possible toward the chest, and the legs flexed.

The skin over the sacrum is scrubbed thoroughly with Synol soap, and is then wiped with sterile pledgets of alcohol, but not dried. The operator's hands are cleansed in the same manner as is the region to be punctured.

To find the point of puncture, the left palm is pressed upon the sterilized skin, with the fingers well extended and held closely together. They are passed down the skin over the sacral spinous processes until the last perceptible one of these is felt under the pulps of the left index and middle fingers. These are then slightly separated and pushed downward until each of them presses an osseous tubercle. The skin is firmly stretched with the same fingers over these tubercles—between them is the space to be punctured.

The solution used in the cases reported was a sterilized decinormal salt solution at a temperature of 99° to 100° F., and in varying quantities. The instrument was a syringe of a capacity of 5 cubic centimeters, provided with tempered steel needles 0.06 centimeter long, .7 of a millimeter in caliber, with an eye 3 millimeters in size at the point.

The syringe and its needle are sterilized by boiling, and the needle is passed through an alcohol flame before each injection.

The needle is taken between the right thumb and middle finger, the tip of the index-finger resting upon the attachment of the needle. So held, at an angle of about 40 degrees to the sacral curve, it is thrust through the space of skin tensely stretched by the left fingers. An instant later the right fingers receive the sensation that is imparted when an instrument is tested by means of tense drumhead. This is produced by the needle's point traversing the posterior inferior sacral obturating membrane. The shaft of the needle is then depressed about 30 degrees and the left middle fingers raised from the skin. The left index is pressed upon the point of puncture to steady the needle and the tissues. In this position the needle is cautiously pushed up into the sacral canal. If each step of the technique has been sedu-

lously followed and no gross abnormality exists, the needle can be entirely inserted without touching the periosteum of any part of the sacral canal.

The left thumb and index-finger now firmly hold the needle's attachment, while the syringe is attached by the right hand. Nine-tenths of the contents of the syringe is then slowly injected into the sacral canal without moving the needle. Then, still slowly injecting, the needle is gradually withdrawn until its point is just beneath the skin. The last drop or two of the solution is then forced out, forming a little bulla at the point of insertion. If these precautions have been carefully observed there will not be even a slight oozing of blood from the puncture.

Subsequent to withdrawal of the needle, the region is wiped dry with a bit of absorbent cotton, and the site of the puncture is covered with a little collodion.

The operation is not more painful than hypodermic injection. Generally there are no immediate after-effects. Of the cases observed, eight received the injections but once weekly.

Such injections with decinormal salt solution offer, it appears, the most promising results in abnormalities of urination due to faulty vesical innervation. Incontinence of urine, enuresis, excessive frequency of urination (unless due to other pathological conditions), can be at least ameliorated by epidural injections. The injections can be made by any practitioner who follows the technique above outlined, and who is alert to those anatomical variations so frequent in the region concerned.

Reviews.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume IV.
Philadelphia and New York: Lea Brothers & Co. December, 1903.

This issue of Progessive Medicine is one of the most important of the four volumes of the year. The first article deals with Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas and Peritoneum, and is written by Dr. John C. Hemmeter, of Baltimore, who is so well known in this country and abroad for his contributions to the study of diseases in these parts, and also because of the monographs which he has written, and which are recognized as being almost classical in their special lines. Perhaps the subjects which will prove most interesting to the general practitioner are those which deal with the diagnosis and treatment of various affections of the gall-bladder and pancreas. His article is followed by one by Dr. Bloodgood, of Baltimore, in which he first discusses the treatment of shock, and hemorrhage, and then proceeds to a consideration of anesthesia and intravenous injections. Dr. Bloodgood brings to the preparation of his article not only large clinical experience, but also a thorough understanding of the large literature of this department of surgery. His article is copiously illustrated. Still another department which we believe will be particularly interesting to the general practitioner is the article by Dr. Belfield, of Chicago, upon Genito-urinary Diseases. In this article copious references to current literature are made, and an interesting discussion of the employment of the various remedies for the destruction of the gonococcus are considered. In that part of the article which deals with the surgery of the kidney and ureter most interesting information is given in regard to the newer statistics governing operation upon these parts. What Dr. Bradford has to say, too, in regard to the geographical distribution of calculus and the occurrence of albuminuria is of interest. This article is followed by one on Physiology by Dr. Brubaker, of Philadelphia, and this again by a most valuable and interesting article upon Hygiene by Dr. Harrington, of Boston. Articles on hygiene seldom interest the general practitioner, but Dr. Harrington not only writes in a charming way, but brings before us questions as to the frequency of the various infectious diseases, and as to the methods of their spread, which cannot fail to interest any one who has any concern with medical matters of the day. Finally, the volume closes with a comprehensive article by Dr. H. R. M. Landis, in which a review of the therapeutic methods which have been introduced during the last twelve months is given, and from which the practitioner can obtain many useful points.

A Text-book of the Practice of Medicine. Designed for the Use of Students. By James Magoffin French, M.D. Large 8vo; 800 pages, illustrated with ten full-page plates in black, colors, and tints, and fifty wood-engravings. Muslin, $4.00, net; leather, $4.75, net.
New York: William Wood & Co., 1903.

The plan of this book is to provide a brief discussion of the most important simple pathological processes, including a cursory mention of some of the principles of bacteriology and of infection and immunity; also to give a brief statement of the clinical laboratory methods, and at the same time to present a general text-book discussion of medical diseases. This is a somewhat difficult undertaking, particularly in a single volume of this size; and it is hard for the author to avoid turning the book into something midway between a quiz-compend and a Practice of Medicine.

In most instances the diction is good, the statements are concise, and the descriptions are clear. On account of the necessity for brevity, however, and perhaps because of some lack of perspective, the descriptions of diseases are sometimes misleading—and would certainly be so to a student. For example, in the description of the third week of typhoid fever, which is intended to represent the usual picture of this stage of the disease, hemorrhages are mentioned as if they were of common occurrence, not as a serious complication, and the general picture presented is that of an extremely grave case. The same tendency, in a rather different form, is shown for instance in the description of hematoporphyrinuria—a condition which, while not common, is of extreme importance when it does occur. After having read a good description of this condition, and certainly after having once seen the remarkable color of the urine, no one, upon seeing urine of the same kind, could avoid suspecting the presence of hematoporphyrin; yet the author merely says that the urine is "dark and concentrated," and gives the remainder of the four lines devoted to this condition to an enumeration of the conditions in which hematoporphyrinuria occurs.

There are also some inaccuracies in the work that are scarcely excusable. For instance, albumosuria is stated to occur in many conditions; but the reaction referred to is one of those used for the rare Bence-Jones body, while distinctive reactions for the much more common deuteroalbumose are not mentioned. Phosphaturia, likewise, is distinctly spoken of as "an increased elimination of phosphates," while what is clinically called phosphaturia is usually not an increased elimination of phosphates, but a precipitation of phosphates.

In some instances, however, the author shows a distinctly impressive manner of treating the matters discussed. The description of septicemia, for example, is put in an unusual and useful form, though again the brevity of the text excludes a number of facts that are at least equal in importance to most of those included.

The reviewer has never been convinced of the usefulness of books that discuss many things in a cramped space.

D. H. E.

General Pathology. By Dr. Ernst Ziegler. Tenth Revised Edition. Translated and Edited by Aldred Scott Warthin, Ph.D., M.D. Royal 8vo; 784 pages, illustrated with 586 engravings in black and many colors. Muslin, $5.00, net; leather, $5.75, net.
New York: William Wood & Co., 1903.

The tenth edition of a work that has from the time of its first appearance occupied so prominent a place as Ziegler's Pathology is not subject to much criticism. There are two points about this translation of the tenth edition, however, that are of especial interest to English readers. In the first place the diction has been much improved, and is now in most particulars excellent; and in the second, the entire original literature has been included, and the most striking recent American and English literature has also been incorporated in this new volume by Dr. Warthin. It was unquestionably a waste of good material to leave this out of the previous editions for the sake of saving a few pages. A collection of literature like this is of immense value to any one that has an active interest in pathology.

There are a few points, especially under "Parasites," that have been omitted, although they might properly have been included. The most striking of these are the recent reports on the occurrence of trypanosoma in man, and the work on the spotted fever of the Rocky Mountains; and the Uncinaria Americana is referred to by name only, while it would perhaps

have been wiser to have given a brief but distinct description of its characteristics and of its pathological importance. Some mention of the work of Flexner and Noguchi on snake-venom would likewise have been useful.

It is always easy, however, for a reviewer to discover facts that he individually would have included in a work. Certainly nothing of marked established importance in recent literature has been omitted by the American editor. The work has in general been brought well up to date; it is translated in an attractive manner, and it has been much improved by the addition of a large number of new illustrations, as well as by the previously mentioned inclusion of literature. The book has long been well-nigh indispensable, and a new edition of this translation that is so well edited as this is welcome to those who do not read German readily.

D. H. E.

THE MEDICAL RECORD VISITING LIST FOR 1904. Price, $1.50.
New York: William Wood & Company, 1903.

This excellent visiting list is once more put before the profession for use during the coming year. It contains pages for the recording of thirty patients per week; other pages for records of consultations, special memoranda, obstetric engagements, vaccinations, nurses' addresses, accounts and deaths; and is in every way equal to the list which they have published in previous years.

ORTHOPEDIC SURGERY. By Royal Whitman, M.D. Second Edition, Revised and Enlarged; 507 Engravings.
Philadelphia and New York: Lea Brothers & Co., 1903.

Since, of all branches of surgery, orthopedics is distinguished by the fact that its greatest activities and successes are concerned with the prevention rather than the cure of surgical affections, a book written, as is this one, for the general practitioner, and designed to call his attention to the importance of recognizing diseases or disability in their incipiency, is one which should be widely read.

The first chapter is devoted to tuberculous disease of the spine, and is especially noteworthy from an excellent section on differential diagnosis. Under non-tuberculous affections of the spine are included syphilis, malignant disease, osteomyelitis, actinomycosis, traumatic spondylitis, rachitic spine, typhoid spine, gonorrheal arthritic spine, spondylolisthesis, sciatic scoliosis, and disease and injury at the sacroiliac articulation, headings which in themselves would suggest a confusing jumble of more or less unusual lesions, but which are so sensibly discussed as to prove interesting reading to the expert.

In the section devoted to lateral curvature, the early diagnosis is perhaps not given the attention which it deserves, though the outline of the means of formulating the diagnoses of well developed cases is put with extreme clearness. There is given an excellent system of exercises for the cure of lateral curvature, together with a description of all other treatments customarily employed. Considerable importance is attached to postures with hyperextended spine.

Tuberculous and non-tuberculous affections of the joints are considered, with satisfactory reference in the latter case to the hip and knee.

Under the heading of congenital and acquired affections leading to general distortions are included rachitis, chondrodystrophia, infantile scrobutus, fragilitas ossium, osteomalacia, osteitis deformans, secondary hypertrophic osteoarthropathy, and acromegalia.

Congenital dislocation of the hip and coxa vara receive detailed consideration.

There is a chapter devoted to diseases of the nervous system, including the deformities incident to acute anterior poliomyelitis, cerebral paralysis of childhood, spastic spinal paraplegia, progressive muscular atrophy, pseudohypertrophic muscular paralysis, hereditary ataxia, neuritis, and hysterical joint affections and deformities.

There is a most excellent and practical section devoted to disabilities and deformities of the foot.

This book is to be heartily commended as thoroughly practical.

PRACTICAL GYNECOLOGY. Text-book for Students and Physicians. By E. E. Montgomery, M.D., LL.D. Second Revised Edition. Illustrated.
Philadelphia: P. Blakiston's Son & Co., 1903.

Perhaps the features which most strike the reader of the second revised edition of Montgomery's Gynecology are the excel-

lence, multiplicity, and practical utility of the illustrations, the systematic arrangement, the subheadings assisting in the quick finding of the subject upon which information is desired, and the general symmetry of the work, space and detailed description being given in proportion to the practical importance of each subject.

Diagnosis and examination are covered in about fifty pages, not in minute detail, it is true, but in that broad and comprehensive way which is most useful to the student and the general practitioner.

Medical treatment and local therapeutics, including electricity, are somewhat briefly disposed of. The treatment of shock by hypodermic administration of testicular fluid is somewhat new. It might have been well to mention that adrenalin chloride, to be of the slightest efficiency, should be administered intravenously, well diluted, and in full doses.

As a means of overcoming tympany, Montgomery states that the most effective agent is an enema consisting of an ounce of powdered alum dissolved in a quart of hot water.

Ergot, hamamelis, hydrastis canadensis, and viburnum prunifolium are considered specifically uterine in their action.

There is an excellent chapter on embryology and anatomy of the genito-urinary organs of woman, and a most satisfactory section on physiology.

Under traumatisms are considered those injuries inflicted during childbirth.

As could properly be expected, the greater part of the book is devoted to inflammations, deviations, and congenital tumors.

Because of its adaptation to the daily needs of the practitioner, this book fully deserves the favor which has been accorded it.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

Among the events of the past month probably none has excited more interest and satisfaction in the minds of medical men, and indeed in the minds of all who are capable of intelligent sympathy with efforts to study the functions of the body and so eventually to alleviate human suffering and disease, than the recent action for libel brought by Dr. Bayliss, assistant professor of physiology at University College, London, against the secretary of the "Antivivisection Society," the Hon. Stephen Coleridge. The latter had alleged at a public meeting that Dr. Bayliss had been guilty of a criminal offense in operating experimentally upon a dog without efficient anesthesia in a physiological demonstration. The result of the trial was to show that the charges were based upon second-hand evidence, which had been accepted without even reasonable attempt at verification, and which was proved to be absolutely untrue. Of the many exposures of the contemptible methods adopted by antivivisection agitators, perhaps none has been more impressive than this. One can only wish that the damages awarded to Dr. Bayliss had been ten times as great as they were; but at any rate the fact that the jury assessed them at £2000 may serve to emphasize the fact that to men of honor and intelligence such methods are wholly repugnant. It is to be feared, however, that no amount of exposure, even of what the Lord Chief Justice termed in his summing-up of this case "slanderous defamation," will convince or convert the supporters of such fanaticism as this antivivisection craze evidently becomes in certain minds.

The Harveian lectures were delivered this month by Dr. D. B. Lees on the treatment of some visceral inflammations, and were full of practical interest. Acute rheumatic carditis and pericarditis was the subject of the first lecture, in which stress was laid mainly on two points in treatment: (1) the value of very large doses of salicylate in rheumatic conditions, as opposed to the moderate doses usually given; and (2) the value of the ice bag for any form of cardiac inflammation in rheumatism.

Salicylate is as truly antirheumatic as mercury is antisyphilitic, but to be effectual it must be given in adequate doses. In children rheumatism is more virulent in its intensity than in adults, therefore proportionately larger doses should be given to children than to older persons. The old tradition that salicylate acts as a cardiac depressant is probably due to the fact

that any patient with cardiac rheumatism is liable to rapid dilatation of the heart, and if at the same time he happens to be taking salicylate the drug is credited with what is really due to the disease. There is however one dangerous result of the drug which must be remembered, namely, the occurrence of "air-hunger," like that in diabetic coma; this has even proved fatal where no alkali was given with the salicylate. This untoward symptom may be prevented by administering sodium bicarbonate with the salicylate, the dose of the former being double that of the latter. As much as 25 to 30 grains of sodium salicylate every two hours may be given to a child, but the initial dose should be about 10 grains every two hours. On this plan as much as fully 300 grammes of sodium salicylate with 600 grains of sodium bicarbonate may be given daily to a child. Both in endocarditis and in pericarditis the continuous application of an ice-bag to the precordium not only relieves pain and is grateful to the patient, but actually diminishes the cardiac inflammation. But if the ice-bag is used great care must be taken that the patient is kept warm with hot-water bottles, both before its application and whilst it is applied; and the patient's temperature must be taken every two hours, so that if a considerable and rapid fall occurs, the ice-bag may be removed.

In rheumatic pericarditis it is all-important to watch carefully the area of cardiac dulness, and if percussion shows that dilatation has occurred leeches should be applied, or venesection performed, and immediately after this some strychnine should be given hypodermically and the ice-bag applied. It is not however only in heart disease that the ice-bag is valuable; Dr. Lees in his second Harveian lecture declared that in pneumonia also there was not only clinical evidence that the application of one or more ice-bags over patches of consolidated lung produced a rapid diminution of physical signs, but that there was some experimental evidence that the lowering of temperature which presumably occurs locally when the ice-bag is used would inhibit the growth of the pneumococcus. But to use the ice-bag successfully the medical practitioner must percuss the whole chest carefully at least once a day, and must shift the position of the ice-bags according to the changes in position of the physical signs; moreover, he must have skilled and reliable nurses for his patient.

The value of bloodletting in pneumonia, whether by leeches or venesection, is too often forgotten. To relieve a distended right heart may be not merely to relieve the patient from distress and to procure much-needed sleep, but actually to save the patient's life. In this connection Dr. Lees made a remark which may well be quoted here. "No reform," he said, "in therapeutics is more urgent than a general adoption of the practice of moderate bloodletting in some diseases of the heart and of the lungs." In his last lecture he alluded to the value of the ice-bag in cases of acute nephritis. Contrary to expectation the continuous application of the ice-bag was found not to diminish but actually to increase the secretion of urine—indeed, it acted as a powerful diuretic. Moreover, its use was followed by a speedy diminution in the amount of albumin in the urine.

The brilliant results of surgery in the treatment of perforated gastric and duodenal ulcers were well attested by a series of cases recently reported by Mr. T. C. English at the Medico-chirurgical Society. In forty-two cases of perforated gastric ulcer operation resulted in twenty-two recoveries, whilst in eight cases of duodenal ulcer there were two recoveries. When such figures are contrasted with the hopeless prospect of such cases only a few years ago, it is evident that there can no longer be any doubt that in all cases where acute perforation seems to have occurred, the patient should be given the chance afforded by laparotomy. At the same time it is clear that great care must be taken in the diagnosis of such an occurrence, for mistake is easy, and it is no small matter to subject any patient unnecessarily to the distress and risks of such an operation. In seven cases in which there were symptoms and signs supposed to point to perforation of an ulcer, laparotomy showed that no perforation had occurred. The after-history of the successful cases is a matter of practical importance. Seventeen out of the twenty-four cases had been traced; in twelve there had been no return of gastric symptoms; in four there had been slight indigestion;

in one some trouble had been caused by peritoneal adhesions. Mr. Keetley also mentioned a series of cases under his own care: Nine had been treated by operation; six of these recovered and three died. In one of the fatal cases another perforation occurred after the operation.

At the Obstetrical Society Dr. Maguire read an interesting paper on acute pemphigus of epidemic character in the newborn. Out of twenty infants delivered within a short period in a certain charity, eighteen were affected with pemphigus, of whom eight died. The disease seemed to be contagious; the symptoms were those of an acute toxemia. It was suggested that it was due to the staphylococcus pyogenes aureus; certainly it was contagious, and had even spread from the infants to older children and adults. No treatment seemed to have any effect in arresting the disease.

In a paper on the treatment of acute cardiac failure, Sir Douglas Powell at the Medical Society of London laid stress on the danger of overfeeding in cases of mitral stenosis. In such cases a plethoric condition resulting from too liberal a diet increases the pressure in the right heart, and might cause acute and fatal failure of the right heart—a disaster which should be avoided by limiting the diet and giving occasional laxatives to unload the portal circulation. The best treatment when the cardiac failure occurs is immediate venesection, and the use of strychnine and oxygen. Sir William Broadbent pointed out that sudden death in cases of mitral stenosis might be due to a more direct mechanical effect of a distended stomach pressing upon the right heart. Sir Lauder Brunton also considered that the mechanical effect is more often responsible for the fatal result than is the mere increased flow of blood during digestion; the distention of the stomach might be equally disastrous, whether it were due to food or to flatulence. Several speakers emphasized the importance of avoiding such mechanical interference with the heart's action in cases of pneumonia where cardiac failure is so liable to occur.

At the beginning of November the King again showed his interest in the battle against tuberculosis by journeying to Midhurst in Sussex, or rather to a remote spot four miles from Midhurst, where in the presence of a large gathering he laid the foundation-stone of the King Edward VII. Sanatorium. The building will probably be one of the finest that has yet been built for the purpose, and the site has been carefully chosen. There will be accommodations for a hundred patients. The Sanatorium is intended primarily for the necessitous poor, but a dozen beds are provided at the special desire of the King for those who are able to pay. It is to be hoped that such institutions may be multiplied, for it is certain that if the accommodations were double or treble that provided here, there would not be the least difficulty in keeping every bed occupied. One can only wish that some such provision might be made for the enormous number of children suffering with various forms of tuberculosis in our crowded cities. It is obvious that to deal merely with pulmonary tuberculosis in adults, the ordinary cases of "phthisis" which seek treatment in sanatoria, is to touch only the fringe of this gigantic evil, whilst children die of all forms of tuberculosis by hundreds every year in London alone; and much of this mortality might be prevented even by a few months in country air.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Dr. Marmorek's new antituberculous serum has been the subject of a good deal of discussion since he read his communication to the Académie de Médecine on the 17th of November. He was to have read it a week before, but there was so much to be heard before his turn came that this event was deferred. The Pasteur Institute, including of course Dr. Roux, was not in favor of his publishing the result of his experiments so soon, as it was felt that there had not been sufficient control of the results he announced. Dr. Roux even wrote a letter to one of the daily papers, in which he gave the reasons why it had been thought best that Marmorek should resign his post as chief of laboratory at the Pasteur Institute. On the day when he read his report to the Académie de Médecine, there was a much larger crowd than usual, several photographers being seen here and there with

their apparatus ready. Dr. Marmorek read his communication in a rather low voice, without much expression, and the impression produced did not seem to be very encouraging, according to the reports furnished by the *Temps*, which furnishes a much more complete record of what took place than the medical papers. Dr. Marmorek described the method he used to obtain the serum. He chose the primary bacilli, as he calls them, and cultivated them in a mixture of veal serum and bouillon. Dr. Marmorek thus sought to obtain a medium similar to that furnished by the human body. He cultivated these microbes in series, and finally obtained a culture which did not contain any tuberculin, but a toxin, which was poisonous for small animals, and which was injected into the horse. The serum obtained thereby was used in injections of 10 to 15 cubic centimeters. This serum did not seem to produce any ill effects upon animals, and by injecting it into guinea-pigs which were inoculated with Koch's microbes, it was found that the progress of the disease was checked, while other guinea-pigs, which served as controls, died from the infection. Dr. Marmorek then proceeded to try his serum on a certain number of patients of the Paris hospitals. In meningitis of tuberculous origin the result was absolutely negative. In tuberculosis of the lungs the results were inconstant; there did not seem to be any deleterious effect, and the temperature was not raised by the injection. On the other hand, in six cases of pleurisy out of seven, the effusion diminished after the injection, and there seemed to be some improvement. In bony tuberculosis the results seemed to be much more favorable. Several cases of Pott's disease were cured, even when complicated by fistulæ, abscesses, intestinal perforation, or paresis of the lower limbs. Nodules of the skin also improved noticeably under this treatment. An abscess was caused by the injections in only three cases out of two thousand. Dr. Marmorek thought his serum diminished the hectic form of fever. He did not believe a definite judgment could as yet be pronounced on the value of this serum. However, experiments are being carried out in various parts of the world to recognize its true worth.

Dr. Marmorek's communication was not immediately discussed, as he is not a member of the Académie de Médecine, but on the 1st of December Professor Dieulafoy read a report on the results obtained in his service at the Hotel Dieu with Marmorek's serum. He spoke as follows: "During the months of August, September, and October, 1902, seven tuberculous patients in my service were treated with Marmorek's serum. Four of them were suffering from different degrees of pulmonary tuberculosis; two had laryngeal and pulmonary tuberculosis; one had pleural tuberculosis with effusion. Dr. Marmorek made the injections himself, and determined the doses as well as their frequency. Each time the amount of serum injected was from five to ten cubic centimeters, and the injections were made every day, or every other day, or at more infrequent intervals. The patients were examined and auscultated frequently, the observations being kept daily. The results are as follows: (1) The serum did not seem to have a favorable effect upon the fever, and what is more, one of the patients, who was suffering from an apyretic form, had high fever after the first injections. (2) The injections did not seem to have a favorable effect on the expectoration, and in some cases the amount expectorated doubled and trebled after the injections. (3) The serum did not seem to have a favorable influence on the lesions, adjacent ones appearing in some cases during the treatment. (4) The serum did not have a favorable effect on the nutrition, emaciation being quite rapid in some cases notwithstanding the treatment. On account of these results, we were obliged to ask Dr. Marmorek to stop making his injections. Of the seven patients who were treated, two are still living. One was affected with a fibrous form of tuberculosis; the other was suffering from pleurisy demonstrated as being of tuberculous origin by means of cytodiagnosis and inoculation to animals. The five others are dead. On the 17th of November, 1902, experiments on animals were carried out by Marmorek and Griffon, chief of laboratory of Professor Dieulafoy. Two series of guinea-pigs were inoculated with tuberculosis, and one series was treated by injections of antituberculous serum. The latter died sooner than the first series, which had not been injected."

At the same meeting of the Académie de Médecine Dr. Monod, surgeon of the St. Antoine Hospital, said that this serum was tried on some of his patients, who were however treated by hygiene and surgical operations. All showed improvement, and some were cured. There were no local nor general accidents. Dr. Le Dentu, surgeon of the Necker Hospital, has also tried these injections on a patient affected with tuberculosis of the upper part of the tibia. Twelve to fifteen injections were made without result and Dr. Marmorek gave up the treatment on account of a sequestrum. The latter was removed, and as a result the patient had first tuberculous arthritis, and then was carried off by pulmonary tuberculosis. Dr. Hallopeau has treated seven patients affected with cutaneous tuberculosis by means of Marmorek's serum. After a month's treatment he was obliged to give it up, as the results were not only negative, but harmful. Local as well as distant accidents took place. Old foci of tuberculosis were brought to life by its use. At the seat of injection nodules formed, which suppurated in some cases for a long time. In a word, the curative effect was *nil,* but the harm done was quite apparent.

At a meeting of the French Society of Dermatology, held last month, Drs. Brocq and Bisserié presented five patients who were being treated for superficial cancer by means of radiotherapy. Dr. Brocq remarked that cancer of the lower lip is not favorably influenced by this treatment, as it seems to spread more after its use. Certain forms of epithelioma, such as those seen on the forehead, nose, cheeks, can however be very much ameliorated by radiotherapy. The technique employed at the Broca Hospital is as follows: The current is furnished by a bobbin producing a 25-centimeter spark with 1600 interruptions per minute. The ampulla is of the soft variety, and its anticathode placed 15 centimeters from the region which is affected. The intensity of the current is 16 volts under a resistance of 5 amperes, and the penetration of the rays corresponds to the fourth or fifth degree of Benoist's radiochromometer. Sittings of twenty-five minutes consume 4 H. measured by Holzknecht's instrument. Two or three applications are made in the course of two or three days; then the patient is made to rest two weeks before beginning the treatment again, so as to gauge the individual reaction.

At a recent meeting of the Medical Society of the Hospitals, Dr. Widal made an interesting statement as to the results of cytodiagnosis in tuberculous pleuritis. Dr. Leopold-Lévi had described a case of typhoid fever with pleurisy in which the examination of the effusion showed agglutination and a number of large mononuclear cells with large nuclei, showing all the forms of transition between the endothelial cells and the mononuclear type. Such a result demonstrated the non-existence of tuberculosis. According to Dr. Widal, two periods can be distinguished in the evolution of tuberculous pleuritis. In a first period before the formation of a neomembrane, a certain number of polynuclear cells are to be found as well as endothelial cells and lymphocytes; in a second period only lymphocytes are to be found. Thoracentesis is usually done during this period; and morever, such an examination allows one to determine the right moment for performing this operation, as it is only then that the effusion is encysted and is less likely to recur.

Medical science in France has lost three of its representatives during the last month—Brun, Duflocq, and Proust. Brun was a well known pediatric surgeon, who at one time had taken up the study of the eye. He was only forty-nine years old when he died, after having shown signs of illness during the last year. He wrote with Dr. Morax a work on "Ocular Therapeutics," published essays on the treatment of appendicitis, and studied thoroughly the question of congenital dislocation of the hip. He was surgeon of the Enfants Malades Hospital at the time of his death.

Duflocq, physician of the Paris hospitals, was treasurer of the International Medical Congress of 1900. He was physician of the Charité for about a year, but he fell ill shortly after his change of service and died after a long illness.

Professor Proust, the celebrated hygienist, was stricken with apoplexy after presiding at the thesis of one of his pupils, and died very soon after. He was specially known for his works on hygiene and the part he took in international hygienic congresses.

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PRACTICAL LESSONS FROM AN EXPERIENCE OF MORE THAN ONE HUNDRED CASES OF ECLAMPSIA.

By BARTON COOKE HIRST, M.D.,
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In the University Maternity we have the records of fifty-four cases of eclampsia. In ten years' service in the Maternity Hospital, in seventeen years' service in the Philadelphia Hospital, in private and consulting practice, I have seen an equal or greater number. Certain facts stand out from this experience which should be emphasized at present, I think, in view of the prevalence of theories not reconcilable with clinical observation nor with the best treatment of the patient.

There are three phases of the subject on which clinical experience throws a valuable light: etiology, the premonitory signs, the preventive and the curative treatment.

It is not the purpose of this brief communication to enter the maze of theories about the etiology of eclampsia: whether the disease depends upon an embolism of placental cells; upon cytolysis of the syncytium, the consequent production of a toxin, and the failure of the organism to produce an antitoxin; upon deficient work on the part of the liver in the reduction of the products of metabolism, and of excess nitrogenous food to urea; upon hyperactivity of the suprarenals or de-

ficient activity of the thyroid; upon resorption of toxins due to microbic infection, is not yet demonstrated. There is no theory yet advanced which has the same basis of common sense and is in such accord with clinical observation as the long-accepted view that the products of fetal metabolism discharged into the maternal blood and eventually eliminated by the maternal kidneys are the chief predisposing cause of eclampsia, and that insufficient elimination by the maternal kidneys is the chief exciting cause. Dienst, one of the latest investigators[1] of the subject, has come back to this view and says, with scientific circumlocution, what the clinician has been saying for a generation. Anything which throws extra work on the kidneys, as a heavy nitrogenous diet and deficient activity of the skin and bowels, anything which impairs the functional activity of the kidneys, as the congestion of an acute nephritis or pressure upon the ureters, is well known to determine an eclamptic attack. As a rule, eclampsia is a disease only of late pregnancy with a living fetus, and is about ten times more frequent in twin than in single pregnancies, showing the probability, at least, of the fetal origin of the toxins of the disease. It is true that rare exceptions to this general rule are observed. Eclampsia has occurred as early as the second month of gestation and as late as six weeks after delivery. But it is open to question whether these cases were not ordinary uremic convulsions. I have a patient in the maternity at present who has had convulsions in two successive pregnancies at the third and at the fourth month, but she has advanced nephritis, and her convulsions are such as might occur in any nephritic subject, whether she is pregnant or not. No doubt the irritability of the cortical cells in the brain, characteristic of pregnancy, had already developed in the woman and determined the convulsive rather than the comatose form of uremia in her.

An argument often advanced against the responsibility of the maternal kidneys for eclampsia is the alleged fact that women with nephritis are not liable to eclampsia. One set of German statistics is frequently quoted to the effect that only five per cent of nephritic subjects in pregnancy develop eclampsia. The way in which these statistics are exploited by the supporters of some of the newer theories to account for eclampsia would, it seems to me, lead the inexperienced to believe that disease or impaired functional activity of the kidneys in pregnancy may be regarded with entire indifference. No view could be more incorrect or more harmful to our patients. It is not true that women with nephritis are not disposed to eclampsia. The reasons why a comparatively small percentage of them actually arrive at the convulsive stage of the disease are that abortion, miscarriage, and premature death of the fetus is the rule in the nephritis of gravid women; that the signs of toxemia appear so early and are so marked as often to call for the artificial termination of pregnancy; that such patients are subjected to an unusually careful dietetic and other treatment; and that a long-continued imperfect elimination has made the organism tolerant to toxins. It has been my experience that pregnant women with nephritis or with a predisposition to nephritis by heredity almost invariably demand active treatment to combat a gestational toxemia, and usually require a premature termination of pregnancy. There is nothing, therefore, in the clincal observation of nephritis in pregnancy to shake our belief in insufficient renal activity as a cause of eclampsia, and we should hold fast to the lesson taught by many a bitter experience that nephritis in pregnancy is one of the gravest complications, demanding constant care and never to be regarded with indifference.

Among the premonitory signs of eclampsia there is nothing comparable in value to the experienced physician with albumin in considerable and increasing quantities in the filtered urine. It is true that a certain proportion of cases occur without precedent albuminuria, but their proportion is not nearly so large as one would infer from the report of sporadic cases with which recent medical literature is filled. In all my cases there were only two in which albumin was absent. In one of these the post-mortem examination

[1]Herzfeld, from an experience of 81 autopsies on eclamptic subjects, unqualifiedly declares that insufficient renal excretion, due to a diseased condition of the epithelium, is the cause of eclampsia (*Centralbl. f. Gyn.*, 1901, No. 40). Bar found the kidneys diseased in every one of the cases he examined (*L'Obstetrique*, 1903).

showed a chronic nephritis dating from an attack of scarlet fever five years before. In a recent report of 322 cases of eclampsia from the Charité in Berlin albumin was absent in only six. There is no other symptom of a gestational toxemia and threatened eclampsia so constant and characteristic as this. The urea excretion is valueless in comparison. Pregnant women excrete anywhere from three to over thirty grammes a day, but usually less than the normal twenty to twenty-four grammes. I have repeatedly seen a very low output without the slightest disturbance of health, and occasionally a rapidly increasing toxemia with an excretion of more than thirty grammes. Any one who is ill advised or inexperienced enough to attach much importance to urea elimination as a sign of gestational toxemia or threatened eclampsia will be constantly making blunders in diagnosis and treatment.

Casts other than hyaline should of course be looked for, but their quantity cannot be measured; they usually accompany albuminuria, increasing with the increase of albumin and disappearing with its decrease, so that their presence and number do not give the clinician as valuable a guide to the requisite therapeutic measures as the quantity and increase of albumin. It is a clinical rule with few exceptions that albuminuria precedes the other signs of gestational toxemia, that the gravity of the woman's condition can be measured by the steady increase in the amount of albumin in spite of treatment, and that a steady and rapid increase of albumin is the most certain and constant premonitory sign of eclampsia that we possess at present. A disregard of this clinical rule is apt to be disastrous to the patient and detrimental to the physician's reputation; yet the impression created by much of the recent literature on the subject, it seems to me, is that albuminuria is unimportant as a danger-signal in pregnancy—a view largely theoretical and speculative that cannot be based on sufficient clinical experience. One factor contributing to this view is the use lately of delicate and unreliable tests for albuminuria. Potassium ferrocyanide, among others, gives a reaction with albumin, with albumoses, etc., giving the impression that albuminuria is much more common in pregnancy and less serious than is really the case.

The preventive treatment is based by every one, I think, on the theory of kidney inadequacy, whether the individual authority accepts that theory or not. It consists, as we all know, of a milk diet, diaphoresis, diuresis, and catharsis, with extra precautions against chilling the skin. The use of thyroid extract as proposed by Nicholson is still on trial. I propose to make a study of it in the maternity.

The curative treatment is too large a subject to be treated *in extenso*. Certain disputed points, however, are open to discussion, and on no division of the whole subject is clinical experience so safe a guide. The most important therapeutic measure on which there is still a difference of opinion is the obstetrical treatment of eclampsia in pregnancy and labor. The views as to the necessity of a rapid evacuation of the uterus are widely divergent. It is easy to understand the feeling which prompts a resort to *accouchement forcé* in eclampsia. The fetus *in utero* seems to be the cause of the eclampsia; the intra-abdominal pressure of advanced pregnancy is an embarrassment to the kidneys; as demonstrated by Herzfeld, a large proportion of the cases are due to pressure on the ureters; there is a general belief that eclampsia is less dangerous after delivery than before, and there are numerous clinical records of convulsions ceasing with delivery and not recurring. I entered on practice firmly convinced that the rapid evacuation of the uterus was the proper treatment, and I have twice reverted to this view, but increasing experience forces me to the conclusion that it is erroneous. The operative procedures necessary, even with the aid of such an excellent instrument as Bossi's dilator, are often followed by injury and shock which an eclamptic patient cannot well endure. I have seen deaths from this cause that might perhaps have been averted by a more conservative treatment. Moreover, recent statistics show that postpartum eclampsia is very little less dangerous than antepartum or intrapartum convulsions, and that the proportion of cases in which convulsions cease after labor is smaller than is generally supposed. After an extended and repeated trial of both plans, I am better satisfied with the treatment directed solely

to the eclampsia without regard to the uterine contents, until such a degree of dilatation of the os is secured spontaneously that delivery can easily be secured without violence. In antepartum eclampsia evacuation of the uterus is only indicated if, after the eclampsia is controlled, the patient's urine is persistently albuminous and filled with casts, or if other symptoms of gestational toxemia continue to a degree that excites anxiety. In such a case it is better, if possible, to induce labor slowly by bougies or the Voorhees bags rather than to resort to a forced delivery. Meanwhile the eliminative treatment by diuresis, catharsis, and diaphoresis should be actively employed. It necessarily follows that any one holding these views cannot approve of Cæsarian section for eclampsia. There is no treatment of the disease with such a high mortality except the pilocarpine treatment. One has a mortality of over 40, the other of over 60 per cent.

As to the treatment of the convulsions, it is well understood that we must employ two sets of remedies: one to eliminate the poison, the other to quiet nervous irritability and muscular activity. It is generally agreed that normal salt injections, sweats, and purgation are the most reliable measures under the first heading. Diuretics during eclampsia are of no use, because the kidneys during the attack are practically non-existent as excretory organs. There is usually anuria or a scanty quantity of bloody, albuminous urine, in which, by the way, the percentage of urea is often normal for a pregnant woman. Venesection should be classed among the eliminative measures; but after resorting to it almost routinely at first, I now rarely do so. Among the sedatives, chloral and opium dispute the field. I confess to a prejudice against the latter, because it antagonizes the eliminative treatment, and there is, it would seem, danger of fatal poisoning from the large doses required, in view of the inactivity of the kidneys. The experience of my colleague, Dr. Tyson, who saw fatal poisoning in a nephritic subject from a drachm of paregoric, is always present in my mind. For the relief of the arterial tension and spasmodic contraction of the arterioles we have always used veratrum viride. An experience of twenty years with it confirms the good impression originally conceived. Nicholson's arguments in favor of thyroid extract in five- or ten-grain doses for the same purpose are plausible, and I intend to give it a trial; but there are cases in which the ingestion by the mouth of five-grain tablets would be difficult or impossible.

Finally, I would urge the advantages of treating eclampsia in a well appointed hospital. Nothing is more disheartening than the inadequacy of this treatment observed, in consulting practice, in private houses. If cases of eclampsia were transported in an ambulance without delay to a hospital well appointed for their treatment, and with a staff thoroughly drilled in the management of such cases, the mortality could be kept at or under 13 per cent, which is less than half what it is in private practice. In other words, a patient would have more than double the chance of recovery that she has in her own home.

SURGICAL TREATMENT OF RECENT FRACTURE OF THE PATELLA.

By Edward Martin, M.D.,
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AND
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Sesamoid bones are developed in tendons, which exert much pressure on the bony surfaces over which they glide. In the tendon of the quadriceps extensor femoris, the largest muscle of the body, and in that portion exposed to the greatest and most continuous pressure, we find the largest and best developed sesamoid bone in the body, the patella.

This muscle, made up of four powerful portions, the rectus femoris, crureus, and two vasti, has an extensive origin from nearly the whole surface of the femur, from the intermuscular septa of the deep fascia, and, through the rectus, from the pelvis.

In marked contrast to its extensive origin is its very limited insertion, by the ligamentum patellæ, into the tubercle of the tibia. At this point it is about an inch wide and a quarter of an inch thick. The patella is enveloped in this tendon, its lower border being about two or three inches above the tubercle.

As the biceps at the elbow may be said to have a second insertion into the deep fascia of the forearm by means of the bicipital fascia, so the quadriceps may be said to have a second insertion, more powerful than that of the biceps, into the deep fascia of the leg; in other words, it has an expanded insertion represented by its so-called lateral expansions. These extend as far as the lateral ligaments of the knee, and pass below into the deep fascia of the leg, being attached to the front of the tuberosities of the tibia.

On the inner side one can follow, on close inspection, the tendinous fibers of the vastus internus, which is larger and reaches lower than the vastus externus, as they pass outward and downward to the side of the patella, the innermost fibers reaching it at its lower end. On the same side, passing inward and downward, from the same side of the patella, a second layer of equally strong fibers may be seen.

These two layers cross each other at the side of the patella, the innermost fibers forming with each other an angle of about ninety degrees. The apex of this angle is about three-fourths to one inch from the patella, about opposite its middle. For this short distance the fibers are crossing each other and form a very strong layer. Inside the innermost fibers as far as the internal lateral ligament, the lateral expansion of the quadriceps is much weaker.

To the outer side of the patella the corresponding fibers from the vastus externus and from the side of the patella probably exist but cannot be seen, as they are covered over by and intimately blended with the very strong iliotibial band of the fascia lata, the fibers of which extend from the patella to the external lateral ligaments of the knee. The strength of this band may be inferred from the fact that it receives the insertion of the tensor vagina femoris and a considerable portion of that of the gluteus maximus muscle.

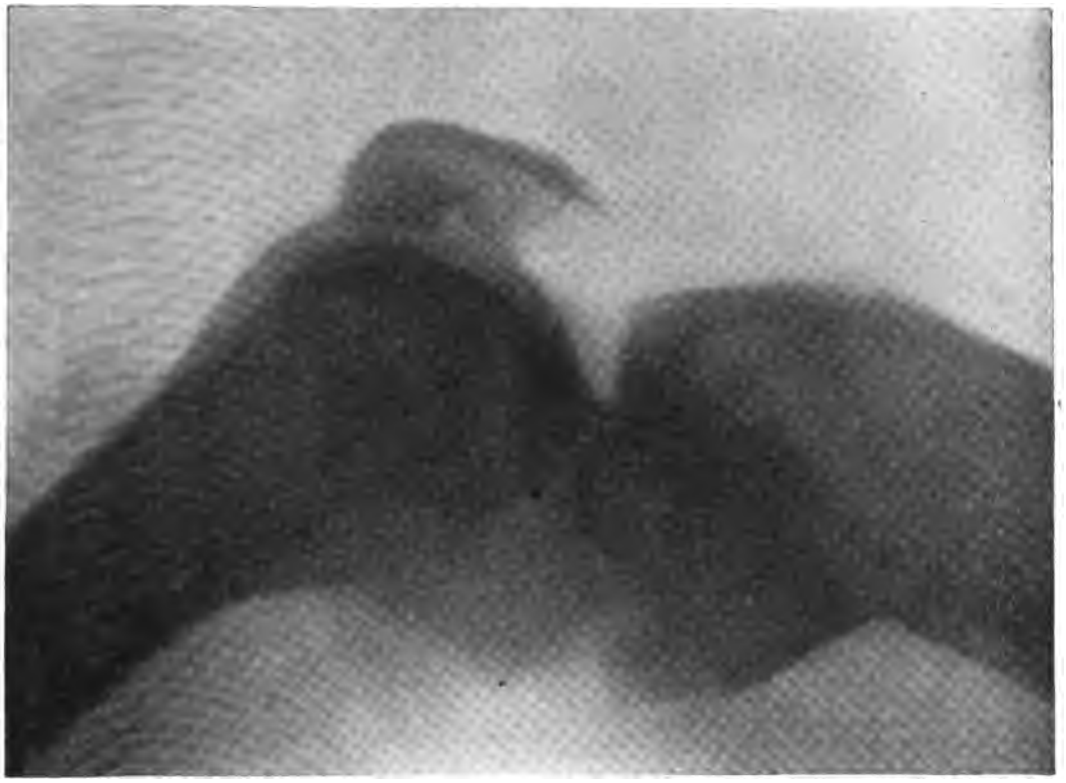

FIG. 1.—Joint perfectly functional seven years after fracture. Treated by adhesive strips. Ligamentous union, half-inch separation. X-ray suggests bony union. (Pfahler.)

The fascia lata is also closely attached to the internal expansion, but it is much weaker than on the outer side.

It is thus seen that the whole front of the knee is covered by a strong fibrous hood, in the substance of which the patella is developed and enclosed. It is evident that while by far the greatest part of the force of quadriceps contraction is exerted

upon the patella and through the ligamentum patellæ upon the tubercle of the tibia, yet a considerable portion will fall on the lateral expansions.

While the lateral and posterior portions of the capsule of the knee are distinct as ligaments, the anterior is not, but is practically made up of the expanded tendon of the quadriceps femoris muscle, augmented on the outer side especially by the fascia lata.

In the metacarpophalangeal and interphalangeal joints of the fingers there are no dorsal ligaments, these places being taken by the expanded extensor communis

FIG. 2.—Joint functional; slight weakness and incompleteness of extension; separation 1½ inches two years after treatment by figure-of-eight bandage. (Pfahler.)

tendons, and in the corresponding joints of the toes a delicate tissue represents the dorsal ligaments, but the real protection and support is provided by the expanded extensor tendons. An analogous condition exists at the knee and on the same side—*i.e.*, the extensor side. In less degree the same holds true of the extensor side of the elbow where the triceps is expanded over that side of the joint.

Underneath the ligamentum patellæ and the lateral expansions, a loose areolar and fatty layer separates them from the synovial membrane. In certain parts this fatty layer is especially marked, as under the upper end of the ligamentum patellæ and lower tips of the patella; a fracture of that end of the bone may, therefore, occur without opening the joint. But at the margins of the patella all the layers blend to be attached to it, and on its under surface the patella is covered with articular cartilage, so that almost all fractures of this bone open the joint and permit the synovial fluid to bathe the fractured edges.

To obtain some idea of the strain which the lateral expansions will tolerate if the patella is broken, the patella in the cadaver was divided transversely about its middle by a saw. A hook made for the purpose was inserted under the fractured edge of the upper fragment. A little force was necessary to pass it between the fragments. The foot was then tied firmly to one end of the table, while by means of a slender but strong rope an ordinary spring scales, used for weights up to three hundred pounds and graded by five-pound marks, was attached to the hook.

Traction was then made as nearly as possible in the line of the quadriceps muscle. Of course, the hook did not transmit the force to the lateral expansions as evenly and advantageously as would the quadriceps in life. The first effect of traction was a stretching of the fibers, permitting a separation of the fragments for about an inch. Then a tearing allowed the separation to increase rapidly to about two inches.

The tests, though few and imperfect, show at least that the lateral expansions close to the patella will stand a strain of from eighty to a hundred pounds.

Strong tendinous fibers from the quadriceps pass over the patella into the ligamentum patellæ below, and are intimately adherent to the surface of the bone. Directly over them passes the fascia lata. When fracture occurs these fibers are irregularly torn, and the frayed edges are driven by atmospheric pressure between the fragments. In a short time they are so adherent to the fractured edges as sometimes to require an actual dissection for their removal. If not removed they may interfere with bony union.

Most fractures of the patella are due to a violent contraction of the quadriceps while the knee is flexed and the patella is resting on the convex femoral condyles. The lower end of the patella is fixed by the ligamentum patellæ while the quadriceps

is pulling at right angles to the anterior surface of the bone.

Although the treatment of fracture of the patella is one of the most thoroughly discussed subjects of recent years, it remains true that in each of several hospitals of the same city a different method may be advocated and practiced as a routine.

The failure to agree upon one method of treatment is due in part to the fact that no single method is applicable to all forms of this injury to the exclusion of others, but is in the main based on a general experience which shows that the ultimate functional results after fracture of the patella are fairly satisfactory under any method of treatment which fixes the leg in extension for one or more weeks (Figs. 1 and 2). When the joint is normal, the worst that can be expected from purely conservative treatment is a weakness and incompleteness of extension incident to elongation of the tendinous expansion of the quadriceps and separation of the patellar fragments, manifested by difficulty in ascending stairs or rising from a sitting posture, and a tendency to fall forward when the toe is caught even by a slight obstruction.

With a bilateral fragment-separation of three inches it is perfectly possible for a patient to walk in a manner so normal that a previous trauma would not be suspected, though there can be noticed in these cases a swing of the thigh, and a downward and backward planting of the foot with each step, which would suggest the nature of the affection.

FIG. 3.—Showing the moderate separation (¾ inch) of the patellar fragments when the ligaments and tendinous expansions to either side of the patella are intact.

The usual result of conservative treatment is a separation of fragments so moderate as to cause no serious inconvenience.

In considering treatment of fracture of the patella, the nature and extent of the injury must be regarded, and this is largely dependent on the nature of the trauma. The great majority of fractured patellas are caused by muscular action, the injury then being a tearing apart of not only the

bone, but the ligamentous expansions to either side of it, which represent practically the tendons of insertion of the vasti muscles. This fracture is usually single and simple, and the amount of separation of the fragments will depend on the extent of tearing to which the ligamentous structures lying to either side of the bone have been subjected. When these structures are untorn the separation of the indicative of the extent of this tear (Fig. 4).

When the leg is held extended upon the thigh, even with a very wide tear, the patellar fragments may lie close together, but when the patient tries to lift the thigh from the surface on which it is lying, the upper fragment is pulled away from the lower. The same effect is produced by the surgeon bending the leg on the thigh.

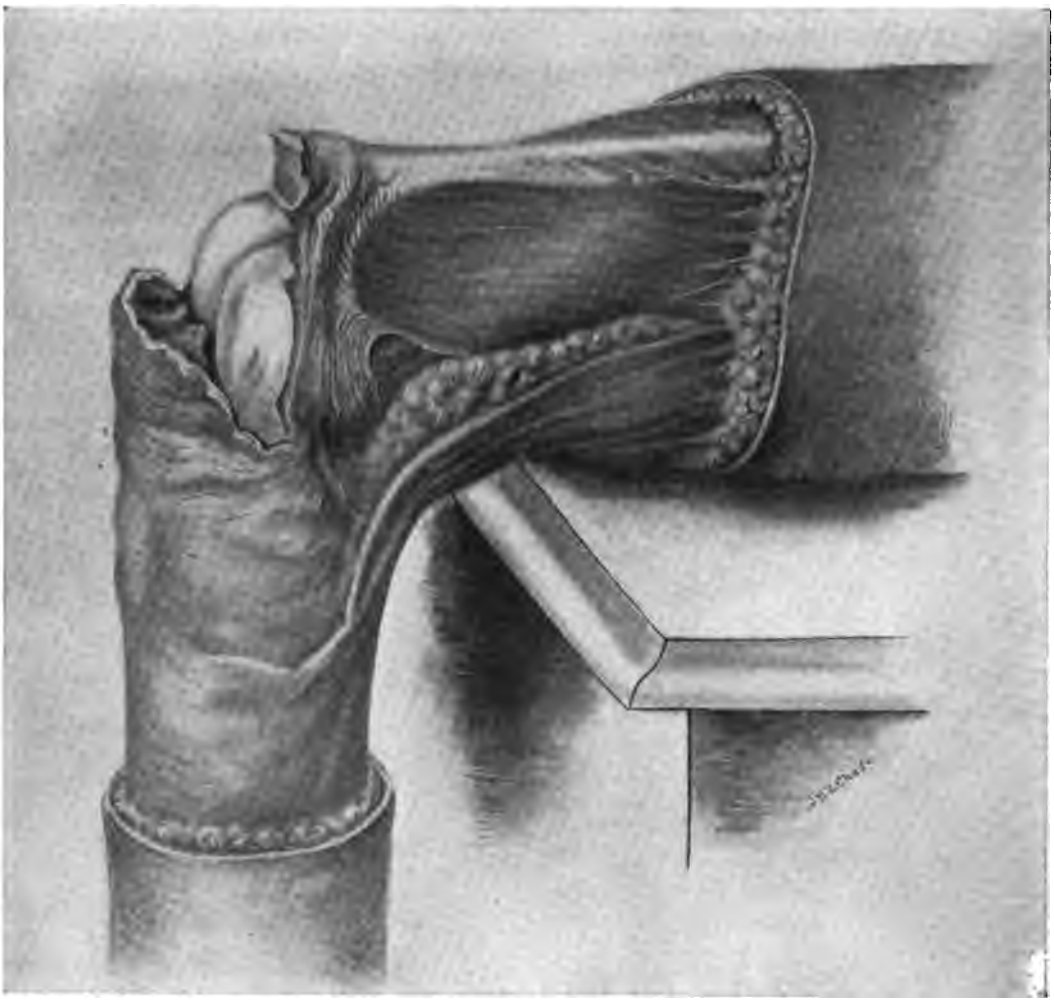

FIG. 4.—Showing the wide separation of the patellar fragments (3 inches) when the ligaments and tendinous expansions to either side of the joints are torn.

fragments when the leg is flexed at right angles to the thigh will not be greater than half an inch. It is usually not more than a quarter of an inch. Fig. 3 illustrates this perfectly.

Fragment-separation of more than half an inch necessarily implies that the tendinous expansions at the sides of the patella have been torn. The amount of separation when the knee is flexed is roughly

Blow fractures are usually comminuted, are often compound, and the tendinous structures to either side of the patella are usually uninvolved; hence the fragments, though often displaced, are not widely separated from each other even when there is a large effusion into the joint.

The treatment of tear fractures has for its object a union of the patella either by bone or by a ligament of not over half an

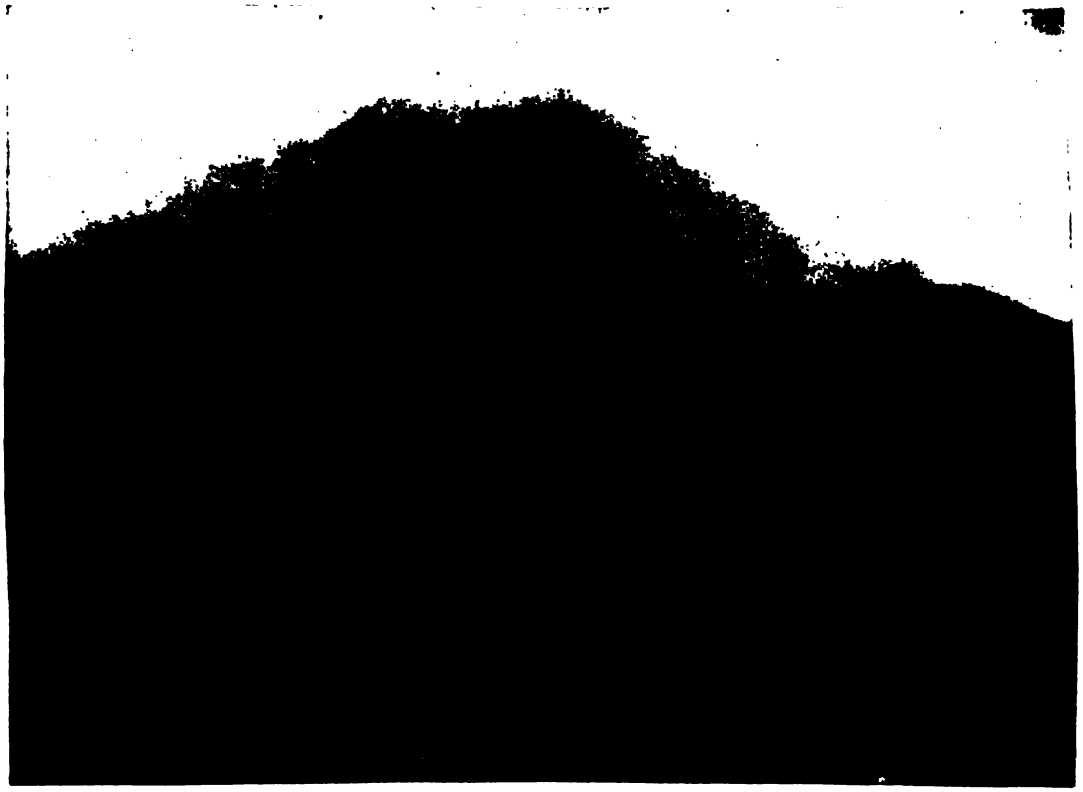

FIG. 5.—Joint functional; slight weakness of extension; incomplete flexion, twenty-four years after treatment by Malgaigne's hooks. Separation one inch. (Pfahler.)

FIG. 6.—Weak joint (loss of extending power) thirty-one years after treatment by adhesive plaster (separation 6 inches). The patient walks well. (Pfahler.)

inch in length, and should give careful consideration to the immediate restoration of the continuity of the tendons of insertion of the vasti muscles when these are torn, since unless this is close a short ligamentous union of the bone fragments will commonly break or stretch, leaving a weak joint.

The treatment of blow fractures has for its end the bringing into good apposition often many small fragments of bone.

The treatment of fractured patella may be non-operative or operative, but even in the non-operative treatment there is no universally accepted method of procedure. One of two methods is usually adopted. In the first, and perhaps this is the ordinary method in hospitals and private practice, the leg is fixed in extension, the fragments being brought in as close apposition as possible by means of adhesive strips. This fixation is continued for from four to six weeks, and is often accomplished by a plaster-of-Paris bandage. After this period the patient is subjected to massage and passive movement, and should have acquired as much function as he can expect in from six to twelve months. This in patients previously healthy and with a normal joint.

The second conservative method consists in fixing the leg in extension for from six to ten days and applying about the swollen joint pressure by means of elastic bandages. At the end of ten days vigorous massage is to be practiced, together with gentle passive movements. The claim for this method is a greatly shortened period of convalescence, incident to the rapid absorption of the inflammatory exudate and an approximation of fragments sufficiently close to insure good function.

These two methods are often combined in part. Fibrous union results from both methods (Fig. 5), and in both the fragments are likely to become more widely separated with use (Fig. 6), though this usually occurs only in such cases as exhibit at the time of the accident the symptoms of a wide tear of the tendinous expansions of the quadriceps.

The operations practiced for the cure of fracture of the patella are:

1. Subcutaneous anteroposterior encircling of the two fragments by means of silver wire.

2. Subcutaneous peripheral circumferentiation of the patella by a purse-string wire suture.

3. Free incision and direct bony suture of the patellar fragments and suture of the torn ligaments on either side.

Of these methods the subcutaneous encircling of the patella in an anteroposterior direction by a silver wire—the so-called Barker method—is perhaps least desirable.

It opens the joint, but provides an inadequate exit for the blood-clots which it may contain. It introduces a foreign body into the joint and allows it to remain there. It provides no sufficient means for the removal of the shreds of periosteum

FIG. 7.—Joint of normal strength and motility thirteen years after wiring. Apparent bony union. (Pfahler).

which nearly always cover the broken bone surfaces, and which adhere so tightly that in an open operation it is sometimes needful to use forceps and curette to strip them up. It does not close the torn tendons of the vasti.

To its credit stand hundreds of thoroughly successful cases and very few instances of infection. Moreover, the operation is simple and can be completed in five minutes. It requires but few instruments, no technical training, and if practiced under antiseptic irrigation assures against joint infection provided the long curved blunt-ended needle and the silver wire are sterile.

If indicated at all, it would be for those

cases which are most successfully treated by conservative treatment—*i.e.*, simple single blow or tear fractures without wide separation.

The purse-string suture has its main application in blow fractures which are simple, are extensively comminuted, and are unattended by rapid and great joint distention. Such fractures are rare. This method brings into apposition the broken fragments without endangering their vitality, though there is always the possibility that some pieces of bone may be forced into the joint cavity or may unite in such a position as seriously to interfere with function.

The open operation is the one of choice for all fractures of the patella attended by separation of more than one-half inch when the knee is in the flexed position, and for all fractures in which the joint becomes rapidly distended with blood. It should be practiced as soon as possible after the injury. It enables the surgeon to clean the joint cavity thoroughly, to suture the torn tendons of the vasti, and to bring the patellar fragments in exact apposition and to hold them there, thus assuring bony union—in other words, to restore the joint to its original strength (Fig. 7).

The patella is exposed by a horseshoe incision, beginning over the posterior surface of the lower extremity of one femoral condyle and carried across to a similar point on the opposite side of the joint. The concavity is downward. The flap is turned down, the patellar break is at once exposed, the joint is cleansed with normal saline solution until all the clots are evacuated, one mattress silver wire suture is inserted if the fracture is a single one, as many as needful if it be comminuted, the tears in the ligaments at the sides of the patella are closed by wire mattress sutures.

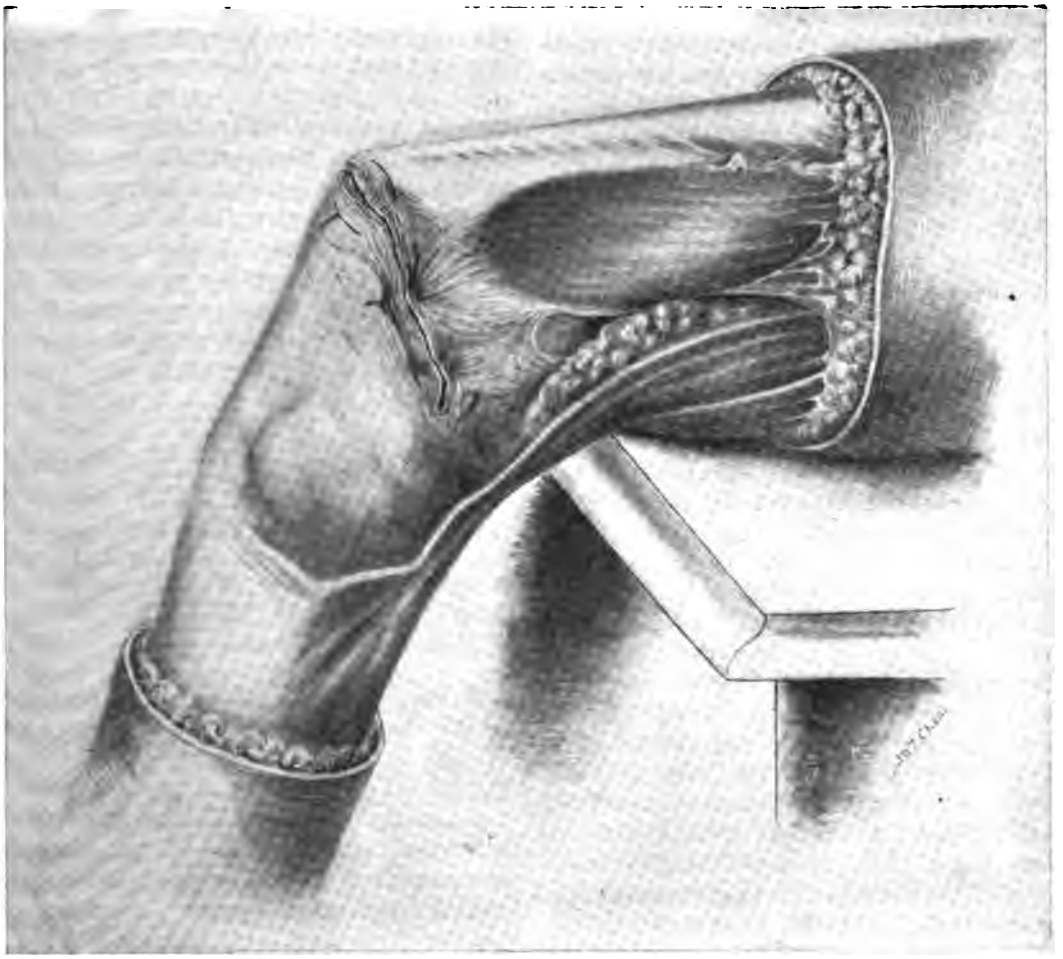

FIG. 8.—Bony and tendinous suture of fractured patella.

and the patellar suture is finally twisted and hammered down (Fig. 8).

This operation can be done very rapidly. The main difficulty lies in passing the wire through the drill holes made in the patella. This is simplified by using a drill with an eye in its end. The patella should be so drilled that the wire does not pass through the cartilage, but gets a thoroughly good grip on the bone. The whole operation can be readily completed in less than fifteen minutes. The wound is closed without drainage. The joint is kept quiet for ten days, after which massage and gentle passive motion are begun and the patient is allowed to walk with a back splint. In six weeks the splint can be entirely removed.

We have treated eleven cases of recent fracture of the patella by the open method, obtaining completely satisfactory results in all; and eight by the subcutaneous method—one by circumferentiation with the purse-string suture, and seven by anteroposterior inclusion. The results were entirely satisfactory in the cases treated by the subcutaneous method, though in two there was a wide separation at the time of operation. We have treated six cases by conservative methods, these patients being afterward able to attend to the ordinary duties of life and exhibiting no weakness barring that of extension. These results were, however, in no way comparable to those obtained by subcutaneous wiring or by the open method of suturing, and the period of convalescence was much longer.

Judging by results alone, and this will hold true of large statistical studies, the subcutaneous method of treating this injury is less likely to be followed by infection of the knee-joint and gives an articulation about as useful as that which follows open operation. On general surgical principles, however, and this would doubtless be carried out by clinical observation were a sufficient number of cases available for the study of the remote results of treatment, the open method is the one of choice.

The choice of treatment of these cases may be summarized as follows:

1. The conservative treatment of fracture of the patella is applicable to blow or tear fractures in which the separation of the fragments is not greater than one-half inch when the knee is flexed to a right angle, and in which there is no great joint tension. Conservative treatment consists in fixation for ten days, the application of adhesive strips to approximate the fragments, the use of elastic bandages to prevent inflammatory exudation, and the employment of massage and passive movements.

2. All fractures of the patella, independent of the amount of fragment separation, attended by marked and immediate joint tension should be treated by the open method.

3. All fractures of the patella in which the fragments are separated more than one-half inch when the knee is bent to a right angle should be treated by the open method; the torn tendinous expansions of the quadriceps being closed by mattress suture, and the patellar fragments being united by silver wire, the insertion of the latter being facilitated by the use of a bone drill with an eye in its boring end.

NOTE.—The skiagraphs were taken from Blockley patients admitted for various causes other than the patellar conditions.

DIONIN—A NEW AGENT IN OPHTHALMIC THERAPEUTICS.[1]

BY WENDELL REBER, M.D.,

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Among the host of synthetic remedies which chemistry in the last few years has offered ophthalmologists, dionin demands a trial. The fact that ethylic compounds are (at least from the standpoint of pharmacodynamic action) superior to methylic compounds is probably responsible for the introduction of dionin into therapeutics. Of the formula $C_{19}H_{23}NO_3HCL+H_2O$, it is known as ethylmorphine hydrochlorate, or "codethyline," as it was called by its discoverer, Grimaux. It is a white crystalline bitter powder, soluble in about 7 parts of water, 1½ of alcohol, or 20 of syrup; but not at all in ether or chloroform.

Dionin was first used by Schroeder (*Therap. d. Gegenwart,* No. 3, 1899) and Korte (*Therap. Monatsh.,* vol. xiii, p. 33), who declared it superior to both

[1]Presented to the Northwest Medical Society of Philadelphia, Sept. 1, 1903.

morphine and codeine in phthisis, chronic bronchitis, and pulmonary emphysema.

To Wolffberg, of Breslau, belongs the honor of employing dionin in the cure of diseases of the eye. It is his researches too (*Wochensch. f. Ther. u. Hyg. des Auges,* vol. iii, No. 16) that give this drug so unique a position among ophthalmic remedies. Darier claims that it not only possesses a profound analgesic power, but that it also has a favorable action upon a morbid process itself, facilitating the dilatation of the pupil (when it is slow under the action of atropine), assisting the resorption of pupilary exudates, and lastly diminishing tension in cases of glaucoma. His discovery of these reputed properties of the drug was purely accidental. He had been treating an obstinate iritis for several days without avail, when it occurred to him to try the effect of dionin. About one-fourth of a grain of the powder was placed in the conjunctival sac, producing at first much smarting, followed soon after by a sense of numbness and marked serous infiltration under the conjunctiva; the eyelids, too, became much swollen. One hour later the pupil was fully dilated and the pain much relieved. Two days later the patient returned, reporting that she had been entirely free from pain during that time, and the eye was almost free of congestion. This experience was shortly repeated in several other cases, and Darier soon after made an enthusiastic report on the use of the drug (*Ophthal. Klinik,* No. 7, 1900). His earnest plea for its employment led investigators in France, Russia, and Germany to experiment with it, and with more or less success when it was properly exhibited.

My own experience with the drug has been confined to the following conditions:

1. Postoperative complications.
2. Iritis.
3. Interstitial keratitis.
4. Vitreous opacities.
5. Glaucoma.
6. Corneal opacities.
7. Sympathetic ophthalmia.

A cataract case that threatened to go wrong furnished me my first experience. The case history is as follows:

Case No. 3211, a married woman of seventy-two, had been under my care for three years with advancing cataract in both eyes. She was in fairly good health, but having been near-sighted and astigmatic all her life, operation did not promise as good results as in the cases that usually present themselves. Albeit, in November, 1892, I did a preliminary iridectomy on the right eye, and as healing was uneventful I proceeded to extraction of the lens four weeks later, which also was successful. Secondary capsular cataract formed almost immediately, however, and six weeks after the extraction of the lens I needled the capsular cataract under the same strict aseptic precautions as had obtained with the two previous operations. Thirty-six hours later there was marked iritis and a plainly seen forming bacterial colony in the anterior portion of the vitreous humor, with impending panophthalmitis. As her pain was terrific and had not been relieved by atropine locally and large doses of sodium salicylate internally, I ordered for her 10-per-cent solution of dionin, to be used every two hours. The next morning I found my patient absolutely free from pain, and although there was great serous infiltration under the conjunctiva and swelling of both eyelids, the cornea was clearer, the iris of better color, and the bacterial colony seemed smaller. The dionin was continued, and within five days the bacterial colony was no longer in evidence, and what surprised me even more, *the capsule of the lens had entirely disappeared*—not a vestige of it was to be seen anywhere. I was led to use the dionin in this case by Darier's results in two cataract cases in which the postoperative débris was said to be much more quickly absorbed under the influence of dionin than naturally.

Subsequently I employed dionin in two cases of discission for congenital cataract to assist in the absorption of the broken-up lens matter, and was greatly pleased with its action in both eyes.

Iritis.—Nowhere is the action of dionin more striking than in this disease. In four cases relief of pain ensued in all within two hours after beginning the use of a five-per-cent solution of the drug, and that when atropine and all the usual remedies had failed to relieve. Darier's (*Lecons de thérapeutique oculaire,* 1902) best results have been secured in this same disease. Indeed, it was in a case of iritis that he happened upon the chief value of

dionin. J. W. Ingalls (*Brooklyn Medical Journal*, 1900, p. 698) has been similarly successful in quickly and lastingly relieving the pain of iritis with dionin, but he prefers solutions even as weak as two-per-cent. Personally I have not been able to get such results with anything under five-per-cent solutions.

Interstitial Keratitis.—Two cases of interstitial keratitis were treated—one the hereditary (parental) form; the other the acquired form (a unilateral case); and in both dionin was not only quite helpful to the atropine, but was quite as markedly active in promoting the absorption of the newly formed matter in the stroma of the cornea.

I am indebted to Dr. H. F. Hansell for the following notes of a case of sclerosing keratitis, in which dionin was employed:

"B. A., a maiden lady of thirty-four, applied for treatment for an old sclerosing keratitis, May 8, 1903. The right eye had been afflicted for ten years, the left one for five years intermittently. The vision at this time was R. 1/60, L. 5/12. In the right eye the corneal stroma was diffusely opaque throughout, and the sclera violet-colored and ectatic. There was deep ciliary injection, annular posterior synechia (but no iris bombe), and a very deep anterior chamber. The temporal corneo-scleral region was not only deeply injected, but was beginning to bulge. In the left eye the sclerosis of the cornea was advancing from the temporal side well over into the visual zone of the cornea. There was one large posterior synechia, but the pupil reacted promptly to light. Iridectomy was done on the right eye and pilocarpine sweats given daily for five days with some slight improvement in vision. At this time two drops of a 12-per-cent solution of dionin was instilled in both eyes, and a violent reaction promptly ensued, the eyelids and indeed the whole face swelling up as in facial erysipelas. Twenty-four hours of ice applications controlled the reaction. Later dionin was reapplied in the same strength solution every second day, with only moderate reaction. After eight days the dionin was used daily for five or six days. June 1 (after two weeks' treatment with dionin) the vision was R. with +4.50 sph. =5/20; L. with +2.50Cx60° 5/5 ptly. The young woman at this time returned to her home in Massachusetts, and no accurate information as to the subsequent course of the disease has been received."

This result rather negatives Konigstein's (*l. c.*) contention that dionin is of no value in the late stages of interstitial keratitis. Bordeaux (*Klin. ther. Wochensch.*, vol. ix, No. 29) and Batalow (*Vratch*, No. 19, 1901) have both used the drug in interstitial keratitis (the latter in a great number of cases), and both testify to the more rapid healing and clearing of the cornea under its influence. Konigstein (*Wien. Med. Presse*, 1903, Nos. 10 and 11) believes that dionin is almost completely abortive of parenchymatous keratitis if used in the earliest stages of the disease, but considers the drug absolutely valueless in its later stages.

Vitreous Opacities.—In two cases of hyalitis of the conventional senile type dionin was wholly without effect.

Corneal Opacities.—But one case of corneal opacity was subjected to the action of dionin. This was in a five-year-old child, both of whose corneæ were cloudy throughout their whole extent as a result of ophthalmia neonatorum. No result whatever was obtained in this case. On the other hand F. von Arlt (*Heilkunde*, vol. vi, No. 11) tried dionin in twenty cases of corneal opacity and claims to have gotten results far better and quicker than ensue from the generally accepted treatment. A. Graefe (*Deutsche med. Wochensch.*, vol. xxvii, No. 15) has also found dionin of use in clearing up corneal opacities. Darier (*l. c.*) remarks that seemingly good results follow stimulation of the nutrition of the cornea and regeneration of its epithelium, but goes on to say that *we cannot speak of dionin's action on the cornea as strictly curative.*

Glaucoma.—Recently there came to me a 69-year-old woman whose right eye had been in a state of absolute glaucoma for four years. During this time it was only by daily massage, the use of eserine and sodium salicylate that the eye was kept free of pain. In June of this year she developed on that eye a corneal ulcer that behaved very much like a pneumococcus ulcer. None of the usual anesthetics gave her any relief from her pain, and the eyeball became very much injected and stony hard. Atropine—one of our valued agents in the treatment of most corneal

ulcers—was manifestly impossible because of the glaucoma. Dionin was therefore combined in 10-per-cent solution with her previous eserine collyrium, and in twenty-four hours she was practically free of pain, and the tension had fallen from stony hardness to about +2. This relief persisted for six days, when the cornea ruptured at the site of the ulcer.

No opportunity has thus far afforded of trying the drug in pure uncomplicated inflammatory glaucoma. In several cases of acute glaucoma, Bellarminov (*Vratch*, 1901, No. 9) has seen the excruciating pain disappear after the use of 10-per-cent dionin ointment, when pilocarpine and eserine had been unavailing.

If dionin proves to be the efficient vasodilator and lymphagogue that it has seemed to be in the few glaucomatous cases in which it has been tried, it ought to become the ideal agent in the hands of the general practitioner in those cases in which he finds it difficult to determine whether he is dealing with a glaucoma or with an iritis. Heretofore he has had to choose between atropine and eserine in such cases, and on his choice of drugs has probably turned the recovery or irreparable damage of an eye. In such a situation he would now seem to be justified in resorting to the use of dionin with the consoling reflection that no matter which of these two diseases he is combating, the dionin will prove helpful until such time as he can refer the patient to an ophthalmologist. This is a consummation devoutly to be wished.

Sympathetic Ophthalmia.—In one case of sympathetic ophthalmia, dionin was of marked service in promoting the absorption of plastic exudate in the pupilary space after the offending eye had been removed and the remaining eye was very slow in regaining any vision at all.

Mode of Action.—It is to be distinctly understood that dionin is not an anesthetic, for while it suppresses pain it does not in any way affect sensibility. It is an analgesic. This is a marked advance in ocular therapeutics. But dionin is also something more—it is a lymphagogue. It produces redness and very marked vascular dilatation with abundant lacrimal secretion. The lymphatic channels then become so distended and dilated as to attain in some instances ten times their original dimensions (Vermes, *Wochensch. f. Ther. u. Hyg. des Auges.*, Feb. 7, 1901: Histologic Examinations of Sections of the Conjunctiva). The conjunctiva frequently becomes enormously swollen, and the eyelids themselves sometimes partake in this swelling; indeed, the eye occasionally assumes an alarming aspect, but no danger need be apprehended. Darier (*l. c.*) aptly asks, "Does dionin act hygroscopically, manifesting its resolutive action by a subtraction of pathologic fluid, which is then replaced by purer blood?" Others have asked whether dionin does not act by counter-irritation just as does a blister; and still others have asked whether it is not in the same category with jequirity in the way it induces increased lymphatosis. Until we have more facts at our command, it is justifiable to assume that dionin acts by stimulating the lymphatic and vascular circulation of the eye. No drug thus far offered in ophthalmic therapy has shown so interesting and effective a combination of properties.

Methods of Use.—Dionin may be exhibited in four forms: as a powder; in solution; as an ointment; or in the shape of cocoa-butter rods. Solutions are preferred by Ingalls, Marquez, and Nimi; Wolffberg gives the preference to the rods, representing 10 to 20 per cent of the drug. All authorities seem to agree upon ointments as the best way to treat corneal opacities. Darier shows a strong leaning toward the pure powder, of which he puts one-twelfth of a grain in the eye. (In two of my patients one-half grain has been put in the conjunctival sac without a particle of effect.) When he uses a solution it is generally of five-per-cent strength. Graefe also uses both the powder and the solution. In cases where the application has to be left to the patient or nurse, von Arlt prescribes a 10-per-cent ointment, of which a bit the size of a pea is introduced into the eye, which is then well massaged. It will probably be found that the caprice of the operator and the exigencies of individual cases will have much to do with the form in which the drug is used. In my own experience I have used only five- and ten-per-cent solutions. A point always to be borne in mind is that the eye develops tolerance for the drug very rapidly, so that little or no effect will be secured from its use longer than six or seven days.

To summarize what has gone before, it may be said:

1. That dionin possesses properties at present inherent in no drug thus far used in ocular therapeutics.

2. That it is an analgesic of no little power, and is frequently of value in alleviating the pain of iritis in those cases in which atropine does not relieve.

3. That the action of atropine seems to be enhanced by dionin.

4. That it has, upon the eye, a powerful vasodilator and lymphagogue action.

5. That it is of value, if used to the point of distinct reaction, in promoting the absorption of exudation deposits upon the anterior capsule in the pupilary space, and also in helping the absorption of post-operative débris after cataract.

6. That it certainly does help to clear up the corneal opacities in some cases of interstitial keratitis.

7. That it seems without effect in all other forms of corneal opacities.

8. That its influence on the glaucoma process is yet unsettled.

9. That it should be widely used and the effects of such use reported, in order that a final correct estimate of the value of the drug may be made.

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THE TREATMENT OF ASTEREOGNOSIS BY RE-EDUCATION.

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Astereognosis, which may be defined as the inability to recognize objects, their nature and uses, by touch, on account of cerebral disease, but not because of any affection of the peripheral nerves or spinal cord, most frequently occurs in association with incurable hemiplegia, or as a symptom of tumor of the brain. In neither case is treatment worth while, because in the former the total palsy of the arm makes it a useless organ, and in the latter all symptoms will increase with the progress of the disease. When it is the result of a total and complete hemianesthesia from organic disease, treatment is of no avail. In hysterical cases the proper treatment is, of course, that of the underlying hysteria; and the prognosis as a rule is good. Sometimes, however, it occurs as a residual symptom after cerebral thrombosis, or a fracture of the skull in the parietal region, the palsy entirely or largely passing away, and the partial anesthesia which causes the inability to recognize objects by touch remaining as the most troublesome symptom. In these cases treatment may greatly improve or indeed entirely remove the inability.

The method is educational, based upon the idea Frenkel utilized in the treatment of ataxia. It is assumed that sensory cortical cells may be diseased in such a way as to have lost the impress of previous sensory stimuli, yet be normal enough to take and preserve new impressions, and that neighboring cells may vicariously take on the function of those destroyed. The theory of the vicarious action of nerve cells in certain symmetrically placed portions of the brain is accepted by every one in explanation of improvement or recovery in some cases of aphasia, the assumption being that there is a latent power to take on speech function in the right hemisphere. The hypothesis that not only symmetrically placed but also neighboring, immediately adjoining cells, may take on the functions of those destroyed or diseased is, however, not completely in accord with the prevalent neurone theory. Yet there are things to be said in its favor, and it explains many recoveries from disease in which the neurones ordinarily performing certain functions are destroyed. It is not very infrequent, for example, to find at necropsy in cases of Pott's disease in which palsy of the legs had entirely passed off the motor tracts of the cord much smaller and containing fewer fibers than normal. This would seem to indicate that there is an overplus of motor fibers in the cord. Again, the cerebral centers do not have clear-cut, absolutely defined boundaries; rather they fade into each other. The central parts are definite, the peripheries indefinite. In every other organ of the body except the nervous system there are undoubtedly more cells than are required for the work to be done, and it would be rather remarkable and greatly increase the instability of the brain if it had no reserve cells to call upon when needed. The purpose here, however, is not to discuss cere-

bral physiology, but to relate a method of treatment which, whatever theory in explanation of it may prove to be correct, is of some value in relieving a very serious disability.

The method is very simple and consists in having the patient reëducate his sensibility to external stimuli by having him repeatedly handle and feel objects of different weight, shape, and texture. No elaborate apparatus is needed. Blocks of different shapes and sizes, pill boxes of equal size and shape, but containing different weights of shot; pieces of silk, cotton, and flannel, rough and smooth paper, coarse and fine sandpaper, and later, any common objects, are all that is required.

It is best at first to have the patient try only to determine sizes, weights, shapes, and textures, and not what the objects are. The early lessons should last only a few minutes because the patients soon tire, which is a signal to stop. Several patients have told me that they felt not only mental tire but distinct muscular weakness in the arm, though the muscular effort made in handling small objects is infinitesimal. One gentleman, by no means hysterical, said that always during the first few weeks of his treatment, as soon as he began to tire he also had a very unpleasant feeling at the seat of an old fracture in the parietal region.

The method can be successful only in intelligent patients. Those who cannot concentrate attention cannot be helped. The treatment can be carried out well by the patient himself, the only precaution being that he must not see the objects, but depend on the sense of touch alone.

The treatment should be persisted in for many weeks or even several months. Rapidity of improvement varies greatly. If there is no improvement after daily quarter-hour lessons for a month it is useless to continue. Sometimes the patient will recognize objects fairly well for, say, five minutes, and then begin to fail. He must then stop till next day.

Finally, it is not to be supposed that every case of astereognosis due to fracture or thrombosis can be cured or even benefited. I mean only that it is worth trying in many cases and will succeed in some. It cannot be foretold in which cases success will come, in which failure.

THE GRADUAL RESTRICTION METHOD OF CURE IN MORPHINE, COCAINE, AND OTHER DRUG ADDICTIONS.

By S. Ormond Goldan, M.D., New York,
Member American Medical Association; Fellow New York Academy of Medicine, etc.

The treatment of drug addictions, particularly morphine and cocaine, may be by immediate restriction or gradual restriction, which may be more or less rapid, depending upon the peculiarities of the case. We can say positively that drug habits can be cured. The first case I treated in which morphine was taken was published in my first paper.[1]

The second case was a male patient who was addicted to the use of cocaine in powder as a snuff. His addiction to the drug began by his using it for a cold in the head, he having secured the number of the prescription from another user, who had also secured it from some one previously. I found the original of the prescription had been written eight years before by a New York physician of note, long since dead. The pharmacist was accustomed to prepare this in advance and supplied it in small vials. It is only necessary to conjecture how often this prescription had been refilled and the numbers of persons who had used it. A communication from me to the druggist resulted in his refusal to supply the drug, and as a consequence the patient discontinued its use, not however without making every effort to secure it. One may question whether he was actually cured, but the entire change in his habits and in the treatment of his family, the fact that his wife, who is an intelligent woman, failed to find the drug secreted anywhere, although formerly she never failed to do so, and more than this, the general appearance and actions of the patient, may be taken as quite certain evidence that the drug had been discontinued.

The immediate restriction by the use of hyoscine hydrobromide is no doubt the most satisfactory method of treating this condition, but it cannot be used in all cases. First, it is expensive and requires

[1] "Morphine Habituation and its Treatment by Hyoscine Hydrobromide," read before the medical section of the New York Academy of Medicine, Nov. 18, 1902, and published in the *New York Medical Journal*, Jan. 31, 1903.

time, which all patients cannot give, and as drug addictions occur in all walks of life, the gradual elimination plan can be tried in all cases. Though a longer time is required to effect a cure, the results are equally satisfactory provided we have the coöperation of the patients—that is, an actual desire to be cured of their craving for these drugs.

The desire for cure by those addicted to the use of narcotic drugs makes them an easy prey to the wiles of the charlatans, who advertise in the lay journals their so-called cure, consisting of placing the drug to which the patient is addicted in a harmless mixture. The patient is deluded into the belief that he is being cured, while he is still taking the drug, and only realizes the duplicity practiced upon him after some months, when his condition is even worse than it has been. A pharmacist who had been taking two drachms of morphine weekly for some years, and who applied to me for treatment, informed me that he had found the same amount of morphine in the mixture he had taken for nine months. It can easily be seen why these so-called "cure" concerns ask would-be applicants to declare upon their honor that the answers given to the apparently *bona-fide* questions asked are correct in reference to the quantity and preparation of the drugs used and frequency of administration.

The gradual restriction plan of treatment consists simply in an attention to details. The treatment is varied as progress is made, and in order to apply the method intelligently a thorough knowledge of the habits of the patient is necessary. There are three principal conditions to be considered, each of which is a result of the one preceding, and we may say we have a specific remedy for each.

1. The gradual elimination of the drug by replacing it with others, until both are entirely discontinued.

2. The treatment of toxemia by remedies which have peculiar properties as eliminatives of toxic, effete elements; also the use of stimulants of the emunctories, and the employment of gastric lavage.

3. The treatment of the neurasthenia, which is a condition which exists to a greater or less extent in all habitual drug takers.

Hyoscine hydrobromide I believe is a true specific in drug addictions. It should be administered in small doses, as the other drug is withdrawn as rapidly as circumstances will permit, giving a slightly larger quantity at night. Hyoscine is analgesic and hypnotic, and only slightly narcotic. It replaces morphine and cocaine with little if any of the deleterious properties of these drugs. As it is an extremely powerful drug it is rarely necessary to give more than 1/100 of a grain, though the beginning doses should be smaller. Hyoscine has been denounced as too powerful a drug to use, but all patients are not alike, and if a practitioner cannot use hyoscine intelligently then he is unfit to use any other drug.

We also apply remedies to stimulate the intestinal and renal functions, giving in addition much water to flush the kidneys. Gastric lavage is employed for the first week or so, for it is well known that morphine in particular is eliminated by the gastric mucous membrane, and reabsorbed unless preventive measures are resorted to.

Many remedies may be employed for the relief of neurasthenia, of which the chief are tonics, depending upon the individual preference of the practitioner. A valuable remedy for this condition is the glycerophosphates, administered preferably hypodermically, or if desired by the mouth. Glycerophosphates are particularly useful also for the general weakness and muscular pains which these patients complain of when undergoing treatment. For this last condition the various coal-tar preparations or any other non-narcotic drug may also be exhibited.

CHOLELITHIASIS, WITH A REPORT OF TWO CASES.

By John B. Shober, A.M., M.D., Philadelphia,
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Until within a very few years the diagnosis of gall-stones was seldom made unless the case presented such well marked symptoms as to be unmistakable. A palpable gall-bladder or tumefaction, right hypochondriac pain constantly recurring, the presence of more or less jaundice, and the passage of stone per intestine, were

believed to be the characteristic symptoms, in the absence of which a positive diagnosis was said to be impossible.

The chief difficulty which the diagnostician encountered in the past was the very incomplete knowledge we possessed concerning the etiology of the disease, and this rendered many cases obscure which we are now able to diagnose with some degree of certainty.

It has recently been stated by Reidle that ten per cent of the adult population of Germany are the subjects of gall-stones, and Kehr believes that only five per cent of these present characteristic symptoms. However, among the ninety-five per cent of unrecognized or obscure cases there must be a large number of patients who suffer with recurring attacks of hepatic colic more or less severe, and who drift from one physician to another seeking relief for obscure symptoms which are attributed to various functional disorders, such as gastric and intestinal indigestion, so-called torpid liver, chronic Bright's disease, etc. It is to this large class that the attention of the medical world has been directed of late years, and physicians and surgeons have another "bone of contention" quite analogous to appendicitis, over which happily at this time an amicable discussion is going on rather than one in the spirit of contention which characterized discussion of the latter subject a decade or more ago.

The light which bacteriology has thrown upon the subject is undoubtedly the beacon which has guided the profession to a more or less clear understanding of the etiology of cholecystitis and calculus formation. This increase of knowledge has led not only to earlier diagnosis in many of the formerly obscure cases, but also to improved methods of medical and surgical treatment.

I desire to point out a few of the important facts which the bacteriologist has taught us, and then briefly to report two instructive cases of cholelithiasis which have recently come under my care.

It is now generally admitted that bacterial invasion of the gall-bladder is the most important factor in the causation of gall-stones. As early as 1886 the theory of the microbic origin was advanced, but Gilbert was one of the first to absolutely prove the fact.

Gilbert and Fournier (*Compt. Rend. de Soc. de Biol.*, p. 936, 1897) produced gall-stones experimentally by inoculation with colon bacillus and also with typhoid bacillus.

H. W. Cushing (*Johns Hopkins Hosp. Bull.*, May, 1898, p. 91) quotes Flexner as having found pure cultures of typhoid bacilli in the bile in 50 per cent of cases dead of this disease.

Cushing found that ten out of thirty-one cases of cholelithiasis in Halstead's clinic gave a definite history of enteric fever. He also gives five post-typhoidal cases in which the bacillus coli communis was isolated.

J. B. Deaver (*Phila. Med. Jour.*, Dec. 13, 1902) says that the mere fact of bacilli in the bile is not sufficient to cause lithiasis, but that biliary stasis or the congestion of the mucous membrane of the gall-ducts and the presence of bacilli strongly predispose to stone.

Chiari, quoted by Deaver, found typhoid bacilli in the gall-bladder in nineteen out of twenty-one cases of typhoid fever coming to autopsy.

W. H. Welch (*Med. News*, vol. lix, p. 669) claims that typhoid bacilli may be found in the bile of animals five days after an intravenous injection of this micro-organism. He has also demonstrated the presence of colon bacilli in gall-stones.

Muller, of Philadelphia (unpublished), has examined the gall-stones from twelve cases which came to operation for this condition; in three cases he found bacilli coli communis, in one case the typhoid bacilli, in eight cases no growth.

A. J. Lartigan (*Journ. Am. Med. Assn.*, April 12, 1902, p. 930) claims that under normal conditions the intestinal bacteria are found for only a short way up the common bile-duct. But in case of disease of the gall-bladder or change in the composition of bile, bacilli frequently enter the gall-bladder. He found the colon bacilli present in 25 per cent of the gall-stones examined by him. He believes that the colon bacillus is the most important bacterial factor in the incitement of gall-stones.

The invasion of the gall-bladder by bacteria takes place either directly through the common duct from the duodenum, which is the normal habitat of many forms of bacteria, notably of the colon bacillus,

or else, as in the case of typhoid infection, *indirectly* by the circulation through the liver and gall-ducts.

Another important fact which seems to be established by recent studies is that gall-stones tend to form primarily in the gall-bladder and not in the ducts. It is, however, well known that calculus formation takes place in the common and hepatic ducts under certain conditions: for example, when there exists obstruction of the common duct by calculus or otherwise, concentrated bile, and extension of a previous bacterial infection of the gall-bladder to the smaller ducts (cholangitis). Under these circumstances we find the same conditions favorable to the formation of stones as is the case ordinarily in the gall-bladder, namely, concentrated bile and bacterial infection of the walls of the ducts. Ordinarily, however, stones which are found in the cystic or common duct have been formed primarily in the gall-bladder.

The explanation for the above is not difficult. It has been estimated that a normal adult secretes about three pints of bile daily. The gall-bladder acts not only as a reservoir for the excess of bile flowing at any one time, thus temporarily relieving the liver from backward pressure, but also, being contractile, it acts as a pump to keep an even flow of bile through the common duct. The bile therefore which is in the gall-bladder is somewhat more concentrated than that which flows onward through the common duct. It is also stationary for longer periods of time, and therefore more liable to deposit its salts upon provocation. When we consider the enormous and constant flow of bile through the common duct, we are in a position to understand why infection of its walls by extension from the duodenum or indirectly through the circulation is difficult. It is different with the gall-bladder; here the drainage is not so perfect. The specific bacteria, whatever it may be, having entered this viscus either directly or indirectly, finds a quiet harbor, where it may peacefully rest, anchored by a stone of its own formation; or else it may also invade the walls and start a cholecystitis with all its complications.

The acid production of the organisms induces further concentration of the bile, with calculus formation by precipitation of cholesterine, bile acids, and bilirubin-calcium; also infection of the walls of the gall-bladder may and often does take place, and induces a catarrhal cholecystitis with its many complications and sequelæ, namely, pericholecystitis, empyema, hydrops of the gall-bladder, cholangitis, adhesions of the gall-bladder to surrounding organs or to the parietes, with occasional formation of abscess and fistulæ, rupture into the hollow viscera with or without expulsion of stone, extension of infection to other organs, especially to the pancreas, etc. All these conditions give rise to a great variety of symptoms, sometimes most obscure and difficult to interpret. The classical or typical symptoms of calculus and gall-bladder disease are not necessarily present. The pain, if present, may not be localized in the right hypochondrium, there may be no tumefaction or palpable gall-bladder except in the case of hydrops, and jaundice may be absent.

It is very important to remember that the mere presence of stone or stones in the gall-bladder gives rise to no symptoms whatever. If, however, a stone becomes impacted in the cystic duct, hydrops results. If the stone acts as a ball valve at the mouth of the duct, recurrent attacks of hepatic colic occur. Severe attacks of colic occur also during the passage of a stone through the cystic and common ducts into the intestine. Jaundice results to a greater or less degree when the common duct is partially or wholly obstructed by the presence in it of a stone, or by kinking or twisting of the duct from adhesions or pressure from without, or from narrowing of its lumen by inflammatory congestion. Recurrent attacks of cholecystitis and calculus-cholecystitis occur as a result of reinfection, or more frequently they are exacerbations of chronic conditions by the setting free of the latent original organisms.

What then is the significance of cholelithiasis? It simply means that there has been an invasion of the gall-bladder by microörganisms; that this invasion has expended itself in calculus formation and infection of the walls of the gall-bladder, with resulting cholecystitis; that if the infection has been of mild type and subsides without complications, the mere presence of stones in the gall-bladder is of minor importance—they are not likely to

give trouble unless they obstruct the cystic duct and interfere with its proper drainage, or after passing the cystic duct they interfere with the passage of bile through the common duct. The resulting symptoms under these circumstances are significant and unmistakable, and the complications are often disastrous unless prompt and intelligent medical or surgical methods are employed.

It will be gathered from what has been said that cholelithiasis may be considered only a symptom of cholecystitis, a symptom however not necessarily always present. The complications of cholelithiasis *per se* are chiefly mechanical and dependent upon the degree of obstruction to the bile-ducts, while the complications of cholecystitis depend upon the character and degree of the infection and the extent of the inflammatory processes resulting therefrom. The two conditions as a rule exist side by side—that is, stone either in the gall-bladder or in the ducts is present in the majority of cases of cholecystitis, and in most cases of cholelithiasis we find inflammatory changes and the complications of cholecystitis, the result of bacterial invasion of the gall-bladder and ducts.

A discussion of the pathology, the symptomatology, the diagnosis, and treatment of the numerous complications and phases of gall-bladder disease is far beyond the scope of this article, the object of which is merely to introduce the subject in a general way in order to invite discussion.

The following cases present points of marked contrast and are interesting chiefly on that account, and may be summarized as follows:

1. Typhoid infection, cholecystitis, obstruction of cystic duct by stone, enormous hydrops of the gall-bladder, pericholecystitis, cholangitis, multiple abscess of the liver, pyemia, death.

2. Typhoid infection, cholecystitis, obstruction of cystic duct by stone, pericholecystitis with adhesion of gall-bladder to the parietes at the umbilicus, umbilical fistula. Cholecystotomy; recovery.

Case I.—Mrs. H., aged fifty-five; large woman, weighing about 180 pounds. Multipara, youngest child seventeen years old. Family history good. History of typhoid fever ten years before, and malaria for many years; vague gastric and intestinal symptoms for three or four years. She had been confined to her bed for six weeks, very ill with recurring attacks of chills and high temperature. The attending physician, having discovered a large abdominal tumor, asked me to see the patient in consultation. The tumor occupied the right side of the abdomen and extended from the right hypochondrium to the right iliac region. It was movable and cystic. The pulse was small and rapid, the temperature 103° F., the skin moist, and the patient evidently septic. There was no evidence of peritonitis. As she lived in a small town in southern New Jersey, I considered her too ill to attempt the journey to Philadelphia at that time. A week later she was brought to the city on a litter and admitted to the Gynecian Hospital. After admission she had five chills in rapid succession, and died the following day.

The autopsy revealed the following conditions: An enormous, non-adherent gall-bladder, with thick walls, extending into the right iliac fossa, containing about eight ounces of a translucent, brownish, mucoid fluid. Two stones the size of marbles were found free in the bladder, and a third was impacted in the cystic duct. This patient gave no history of jaundice. The gall-ducts were free. General adhesions of the structures around the duodenum, involving the omentum, hepatic flexure of colon, the pancreas, and stomach, were noted. The liver was very large and irregular in outline, and contained three large abscesses and numerous smaller abscesses throughout its substance.

We can only speculate as to the course of events in such a case as this. It seems reasonable to assume that the process began many years before, possibly shortly after her attack of typhoid fever, that in the course of time the cystic duct became obstructed, which resulted in distention of the gall-bladder, that recurrent attacks of infection resulted in pericholecystitis of the base of the gall-bladder, with adhesions to surrounding structures; then followed extension of the infection to the ducts (cholangitis), and further extension by the smaller bile passages to the liver, resulting in the formation of abscesses, which caused death by pyemia.

CASE II.—This patient came from the same town in New Jersey as the previous one. She was forty-two years of age; multipara, last labor eleven years ago. She was referred to me on account of an umbilical fistula which had been discharging a clear, watery mucus for five months. Upon admission to the Howard Hospital May 29, 1903, the following history was obtained: She had always enjoyed good health until two years ago, when she had an attack of typhoid fever (November, 1901). This was followed by what was said to be a relapse, which kept her in bed until March, 1902. During the relapse she became deeply jaundiced and suffered sharp attacks of pain in the region of the right hypochondrium. The jaundice gradually passed off, but she was in very poor health during the spring and summer. In the fall of 1902 she noticed for the first time a decided tumefaction in the right hypochondrium, with increase of pain. She said that she could clearly outline three distinct lumps in this region extending to the umbilicus. In December there occurred a protrusion of the umbilicus, with pain and redness. In January, 1903, the supposed abscess ruptured and discharged a glairy, mucoid material, of a light brownish tinge. After a day or two the discharge became very scanty and lighter in color, almost transparent, and the fistula has continued to discharge ever since.

Upon examination the umbilicus was well retracted, and in its base a small granulation was found indicating the orifice of a fistula which scarcely admitted the point of a small probe. From this opening there was discharging, at the rate of about a minim a minute, a clear mucus, which contained neither cholesterine nor bile. It was not examined for bacteria. There was slight icterus of the conjunctivæ and skin, and the patient complained of right hypochondriac tenderness, which amounted to pain on percussion and palpation. There was decided resistance of the tissues between the right costal border and the umbilicus, with impaired resonance on percussion. The upper border of liver dulness began at the seventh interspace and merged into the area of tenderness and impaired resonance. On account of the resistance, the lower border of the lungs were normal, and the urine was negative.

The above facts seemed to justify the following diagnosis, which subsequently was proved to be correct: Calculous cholecystitis, the result of typhoid infection, obstruction of cystic duct by stone, hydrops of the gall-bladder with adhesions to the parietes at the umbilicus, the formation of umbilical fistula with subsequent contraction of the gall-bladder and downward displacement of the liver.

Operation June 3, 1903. A linear incision through the belly of right rectus muscle, beginning at the costal border exposed the upper surface of the liver, which was drawn down as far as the umbilicus, where the fundus of the gall-bladder, which projected only slightly beyond the border of the liver, was densely adherent over a surface the size of a silver dollar. Upon freeing this adhesion the liver at once assumed its normal position. The fundus of the small and contracted gall-bladder was opened; its walls were slightly thickened, and it contained two stones the size of hazelnuts. One of these stones was impacted in a dilated cystic duct. There was less than a drachm of fluid. There were a few friable adhesions between the gall-bladder, the under surface of the liver, the omentum, and a coil of small intestine. The gall-bladder seemed comparatively sound, and as no active inflammatory process was present a cholecystotomy was determined upon. After removing the stones a large rubber drainage-tube was made to engage in the cystic duct, and it was anchored to the edge of the gall-bladder incision by one catgut suture. Three catgut sutures were also used to stitch the bladder incision to the parietal wound, care being used to include only the peritoneum and a few fibers of the rectus muscle. A small gauze drain was placed between the under surface of the gall-bladder and the intestines, and the wound was closed as completely as the tube and gauze drain would allow. The patient was placed in bed, and the long rubber tube was led over the side into a bottle which was placed upon the floor.

She made an uneventful recovery, draining for four days an average of 7½ ounces of bile a day. Upon her return to her home at the end of six weeks her physician wrote me as follows: "In re-

say that her recovery has been uneventful. She has no pain, the incision is perfectly healed, and she complains only of tiring easily, which condition, I think, is only a natural sequence of what she has been through."

This patient had typhoid fever November, 1901. The gall-stones were removed June 3, 1903. A pure culture of typhoid bacillus was obtained from the center of one of the stones by Dr. C. C. Norris October 20, 1903, two years after infection and four and one-half months after the removal of the stones.

In comparing these two cases we find several interesting points of similarity and contrast. Both were probably due to typhoid infection. Both were cases of calculous cholecystitis with obstruction of the cystic duct by stone, and distention of the gall-bladder (hydrops).

Although in the second case, at the time of the operation, the gall-bladder was found contracted, we are forced to the conclusion that at some previous time, probably just before the occurrence of the umbilical fistula, it must have been greatly distended in order to permit adhesions to form between it and the parietes at this point. The patient stated that while the fistula was discharging the lumps in the right hypochondrium disappeared.

The first case went on steadily to a fatal termination. In the second case nature attempted to effect a cure by the formation of dense parietal adhesions and the establishment of an external fistula at the umbilicus. The fistula acted as a drain and allowed the gall-bladder to contract, resulting however in downward displacement of the liver and leaving the patient in a condition of chronic invalidism, but undoubtedly saving her from the more serious complications of extension of the infection and the increase of the hydrops.

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THE MEDICAL TREATMENT OF ACUTE APPENDICITIS.

G. LYON states in *La Presse Médicale* of October 28, 1903, that the majority of cases of acute appendicitis, if seen at the beginning of the attack, are amenable to medical treatment. He keeps the patient perfectly quiet, applies ice to the appendicular region, and withholds all food and time neither purgatives nor enemata are administered, for the author believes that the intestinal contractions which they excite may rupture the appendix and cause its contents to be expelled into the peritoneal cavity, or else prevent the formation of adhesions which localize the peritonitis. On the third day small quantities of water are allowed, and on the fourth milk is given, provided the temperature has fallen. If the temperature does not fall, nothing but water is given for several days. On the third or fourth day an enema of olive oil may be given for the purpose of unloading the bowels, and two or three days later a dose of castor oil, of which two or three teaspoonfuls is generally sufficient. This treatment is applicable only to first attacks which are seen within a few hours after the onset of symptoms, and in which no medication has been used. As most patients who have one attack suffer from recurrences Lyon advocates operation after the subsidence of the first attack. He usually waits from four to six weeks from the time of the initial symptoms, during which period the patient is kept in bed.

INTERSTITIAL NEPHRITIS AND PYELONEPHRITIS TREATED BY PERMANENT CATHETERIZATION.

CABOT (*Boston Medical and Surgical Journal*, Nov. 19, 1903) believes that when efficient drainage is afforded to patients offering the clinical picture of a pyelonephritis complicated by a preëxisting interstitial nephritis a great amelioration or even total disappearance of febrile and uremic symptoms is generally brought about. There is a considerable increase in the amount of urine, and also an increase in the amount of solids eliminated.

The author believes that immediate continuous catheter drainage of an overdistended bladder is often better than intermittent catheterization. By thus establishing a constant outflow, all danger of back flow up the ureter is removed, and thus are greatly diminished the chances of pyelonephritis.

It also seems probable that in cases of dilated ureters, permitting regurgitation of the urine from the bladder back to the pelvis of the kidney, prolonged drainage of the bladder will permit such a shrinkage of the ureters and ureteral orifices as to result in normal valvular action of the

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Leading Articles.

BOLDNESS AND CONSERVATISM IN THE TREATMENT OF CARDIAC DISEASE.

In connection with this subject we have just read an article by Dr. Alexander Morison, in the *West London Medical Journal* for January, 1904, which serves to afford a theme for editorial consideration. The title of his paper is "Boldness in the Treatment of Heart Disease," and as may be imagined from this title, he devotes several pages to urging his professional colleagues to resort to more radical measures than they are accustomed to in instances in which cardiac failure is present. Part of his paper we have abstracted and published in the Progress columns of this issue of the GAZETTE. It will be seen that he strongly advocates the employment of doses of the tincture of digitalis as large as 30 minims at intervals of four hours until a definite effect is produced upon the action, force, and capacity of the dilated and failing heart; and in some instances he advocates the combined use of strophanthus and digitalis until 300 minims of these tinctures have been taken. The whole object of his paper is to encourage the more general employment of what might be called massive doses of this powerful drug.

We have no doubt that cases are occasionally met with in which heroic doses of digitalis are not only advisable but absolutely necessary, if the patient's life is to be saved; and we have no intention of taking an opposite position to that occupied by Dr. Morison, and advocating the employment of minute doses as a routine measure in the treatment of cardiac disease. But increasing experience seems to make it clear that many physicians are accustomed to use large doses of digitalis in cases of heart disease, and to continue their use over a very considerable period of time. The issue which we wish to take is not that Dr. Morison is wrong in advocating boldness, but that boldness must, in many instances, be tempered by good judgment, by a careful consideration of the actual condition of the patient, and of the time during which he has been taking the remedy. It is a fact well known to every one who is conversant with careful studies upon digitalis that it is slowly absorbed, and that it equally slowly develops its stimulating effect upon the heart muscle. Again, it is also well known that digitalis produces an effect which lasts over a very great length of time, and that it may cause symptoms of more or less severe poisoning if large doses are continually administered, and actually absorbed.

Within the last few weeks we have heard a most excellent practitioner of considerable experience express the belief that digitalis rarely, if ever, produced dangerous symptoms when given in massive doses, and at that time, and now, we feel that we must take issue with him concerning this statement. In 1897 the writer of this editorial published an original article in the pages of the THERAPEUTIC GAZETTE in which he gathered together information from a number of well known clinicians as to whether digitalis was capable of producing a so-called cumulative effect, the existence of which has been denied by some, and positively asserted by others. The result of that collective investigation, and the result of further experience, have

served to indicate that digitalis does produce a cumulative effect; not because it is a drug which possesses properties peculiarly dangerous in itself, but because in its administration we must never forget four factors which are to be carefully considered whenever a powerful drug is given. These four factors are: the size of the dose administered, the size of the dose absorbed, the rapidity with which the drug is eliminated, and the length of time during which its effects are maintained.

To the mind of the writer the question of the administration of large doses of digitalis is not very different from the question of the administration of large doses of mercury in the treatment of syphilis. We all know that in many cases of active syphilis it is the duty of the physician to establish a thorough mercurial influence at the earliest possible moment, and every syphilographer of experience also knows that it is necessary, after a mercurial influence is established, to administer doses which are about half the size of those first employed, since by this means a full mercurial effect can be maintained without producing evidence of excessive mercurialism. The reason for this therapeutic procedure is that mercury is a drug which is slowly absorbed and slowly eliminated, and after the system has become thoroughly impressed by the remedy its elimination progresses so slowly that half the original dose is able to maintain a full mercurial effect. So it is with digitalis. There are cases of cardiac failure during the course of acute diseases, and during the period of ruptured compensation, when it is essential that the heart shall receive the stimulating and supporting influence of this great cardiac tonic at the earliest possible moment. For this purpose large doses should be given. As soon, however, as there is evidence that the drug has taken control of the heart, we believe that the dose should be cut down to one-half or one-quarter of the former dose, and that its further effects should be most carefully watched. In many other instances, where the condition of the patient is not urgent, we believe that large doses of digitalis at any time are not only unnecessary but very prone to disturb cardiac rhythm, and we have constantly seen good effects from such small quantities as two or three minims of a physiologically tested tincture of digitalis given three times a day. In some instances, where the condition of the heart is urgent, it is the habit of physicians to resort to the tincture of digitalis given hypodermically. We cannot help feeling that this is a very uncertain method of medication, for as soon as the tincture comes in contact with the juices of the tissues it is precipitated, and the rapidity of its absorption can in no way be estimated. Not only is this true, but it is probable that if the drug is given by the stomach with some gastric stimulant, such as strychnine, capsicum, or Hoffmann's anodyne, it will be absorbed much more rapidly and certainly than if it is put in subcutaneous tissues. We have more than once seen digitalis, given hypodermically in large doses for several days, produce no evidences whatever of any cardiac effect, and then, with some sudden change in the condition of the patient, such for example as that which occurs in the crisis of pneumonia, the digitalis has been rapidly absorbed and produced an effect which was practically poisonous, and certainly dangerous.

THE PREVENTION OF PNEUMONIA.

The intention of this editorial is not to deal with drugs which are to be used for the prevention of pneumonia, because, so far as we know, no such drugs exist. It is, however, important that every physician should recognize that croupous pneumonia is an acute infectious disease, and that as such we should take all possible measures to prevent its spread. There is reason to believe that persons who because of moderate vitality are prone to infection by the pneumococcus may very readily become ill if exposed to this organism. Several times within the last few years we have been impressed with the carelessness of physicians in regard to the possibility of infection by this germ. We have repeatedly seen patients, ill with pneumonia and influenza in hotels, cough violently, and unintentionally expel upon the blanket which covered them tiny particles of sputum which were literally reeking with pneumococci or with the specific microörganism of epidemic influenza. While the pro-

prietors of these hotels doubtless took care that the bed linen was carefully washed after being used by such patients, in the majority of instances they certainly were not instructed that the blankets were sources of dangerous infection, and doubtless other persons, many of whom were in impaired health, who have slept under these blankets have become infected by pneumonia, and have wondered where they have acquired the disease. Again and again we have seen the carpet exposed to similar chances of infection, and it is by no means uncommon to see a patient rest the surgical gauze into which he has expectorated upon the blanket which is in front of him.

While most physicians insist that patients with tuberculosis shall expectorate into spit-cups or cloths which either contain antiseptics or which are at once disinfected, they are far too frequently lax as to the orders which are given for similar treatment of the expectorated material in croupous pneumonia. While we have no way of destroying the pneumococcus when surrounded by some of the conditions which seem favorable to its existence, it is certainly the duty of the physician, not only for the sake of his patients, but also for his own benefit, to see to it that the myriads of cocci cast off by a patient with pneumonia are destroyed before it is possible for them to do further damage by infecting other persons.

THE QUESTION OF INTESTINAL ANTISEPSIS.

For many years a very large part of the medical profession has been convinced that it is possible by the administration of certain drugs to produce a condition of so-called intestinal antisepsis, or, to speak more correctly, intestinal asepsis. Other members of the profession hold that this is a scientific impossibility because they consider that any substance which is powerful enough to destroy the microörganisms in the bowel will also be strong enough to destroy the human protoplasm. Again, it has been considered that most of the so-called intestinal antiseptics are absorbed from the bowel, and therefore cease to exercise their antiseptic influence long before they have passed very far along this tube; or, if they are not absorbed, they are so altered chemically as to no longer possess antiseptic properties. Again, there has been much evidence adduced to prove that the bowel contains a large number of microörganisms, benign in character, whose function it is to aid the digestive juices in the splitting up of various substances taken as food, and so it has been thought that to give intestinal antiseptics would, if they were powerful enough to really destroy bacteria, damage both pathogenic and benign microörganisms, and so, while doing good on the one hand, would do harm on the other. There can be no doubt that there is a considerable amount of force in these latter statements, but on the contrary there is a good deal of weight in the argument that the popularity of intestinal antiseptics proves that they must be advantageous. If they were not they would not be so universally employed. There can be no doubt that the administration of certain of these drugs does diminish intestinal flatulence and the signs of fermentation in some cases. For these reasons we are much interested in an article by Strasburger, which is quoted by Hemmeter in an article contributed by him to "Progressive Medicine" for December, 1903.

Strasburger believes, as the result of clinical observation and animal experimentation, that it is useless to attempt intestinal antisepsis by the administration of drugs. He believes that the administration of these remedies may cause a slight decrease in bacterial growth in the small intestine, but asserts that this is soon followed by an increase which is due to interference with the natural protective powers of the bowel. He thinks that where there are marked evidences of intestinal putrefaction a much more efficient method of treatment is by cleansing the bowel with purgatives. While Hemmeter is inclined to regard Strasburger's observations as possessing a good deal of weight, he is not inclined to combat the wide-spread professional confidence in intestinal antisepsis, and quotes another paper by Stern which seems to indicate that while it may be impossible to destroy microörganisms in the bowel, it is, on the other hand, entirely possible to interfere very materially in their growth. After all, this is what antisepsis means. It is probably true that there are no true in-

testinal germicides, but that there are a considerable number of substances which, if administered skilfully, destroy and inhibit the growth of microörganisms in the bowel.

SHOULD THE QUANTITY OF POTASSIUM BE CONSIDERED WHEN GIVING LARGE DOSES OF THE SALTS OF POTASH?

We have on more than one occasion stated our belief that physicians were prone to neglect the power of potassium upon the economy when administering large doses of the iodide of potassium, of the bromide of potassium, or of the vegetable salts of potash. We have repeatedly seen instances in which children were markedly depressed by full doses of so innocent a drug as the citrate of potash, and we believe that some of the depression following the use of large doses of the bromide of potassium is due to the potash base. We have therefore read with some interest the results of an experiment which has been carried out by Kleeberg, of New York, upon the influence of potassium sodium tartrate upon the circulation. In these experiments he found that neutral sodium tartrate, when introduced intravenously, in moderate amounts, stimulated the heart and caused a rise of arterial pressure, and that the depressant effect of sodium potassium tartrate depended upon the potassium which was present, confirming our view that this base of substances is capable of producing evil results at times when very large doses are administered.

CONTINUOUS LOCAL INFECTION.

So much study has recently been concentrated upon the deleterious effects of poisons circulating in the system because of imperfect digestion and assimilation, effects particularly noticeable in regard to the nervous and vascular systems, that attention has perhaps been diverted from the profound constitutional depression which may be incident to a continuous absorption of toxins from a point of infection in itself of apparently small moment. Thus it is well known to the genito-urinary surgeon that a chronic follicular prostatitis, causing few if any local symptoms, associated with a very small quantity of pus in the urine, may completely undermine the health, producing a condition of neurasthenia so pronounced as to border closely upon some forms of insanity. The throat specialist recognizes an equally deleterious influence upon the health as the result of a chronic sinusitis or even a lacunar tonsillitis. The gynecologist notes conditions of invalidism absolutely dependent upon pelvic collections of pus which in themselves give rise to slight and almost negligible local symptoms. The abdominal surgeon often completely restores to health a physical wreck by the removal of a catarrhal appendix, sometimes associated with small extra-appendicular purulent collections which, at the most, cause directly local tenderness and intestinal catarrh.

The particular form of local infection to which Godlee (*Lancet,* Dec. 5, 1903) calls attention as a source of deterioration in health is pyorrhea alveolaris. This is so common and insidious as to excite little apprehension. Many uncleanly people suffer but little from it, even though the gums be spongy, the teeth loose, and the breath incredibly foul. Among the well-to-do and cleanly—those who regularly scrub their teeth—complaint is usually made to the effect that the gums bleed readily when the tooth-brush is used, that there is a disagreeable taste in the mouth, and sometimes that there is a disagreeable pus-stained expectoration. The odor is often unnoticed by the sufferer.

In the clean mouth the signs of the disease are fairly obvious, consisting in the main of a broad red line at the edge of the slightly retracted gums, and perhaps pus, which can be squeezed from between the gums and the fangs of the teeth, there being formed a sort of pocket in which the foul secretion collects.

It is often a family disease, and is associated with deposits of tartar on the fangs of the teeth. It begins in young adult life, and if undetected leads to premature loss of teeth. By many it is held to be associated with gouty diathesis.

Of the various diseases caused by this constant source of septic absorption may be mentioned fever, rashes, profound septicemia, purpuric hemorrhages and bleeding from the gums, toxic neuritis, septic gastritis, stomatitis, pharyngitis, tonsil-

litis, ulcerative endocarditis, pernicious anemia, and chronic dyspepsia. None the less, it must be recognized that many persons suffering from pyorrhea, as is true of all local affections, remain in perfect health.

Godlee reports a number of instructive cases showing the profound systemic effects produced by suppurating gums, and calls attention to the necessity of the surgeon thus afflicted protecting the patients upon whom he operates against infection by wearing a mask and keeping his mouth closed, and by practicing a preliminary cleansing of the mouth before operation.

In regard to treatment, the first step according to the dentists consists in the removal of the tartar from the fangs, after which the organisms contained in the pockets are attacked by antiseptics, applied either in the form of syringing or packing. Sometimes it is needful to slit up the pockets.

By a system of thorough prophylaxis—a thorough cleansing of the teeth and an active treatment of the suppurating pockets—for a brief spell, followed by repeated cleansing and treatment once a month, it is now claimed that this disease can be cured in its early stages and arrested even when well advanced.

TOTAL EXTIRPATION OF THE STOMACH.

This operation, at one time regarded as an absolute impossibility, has now been repeated with sufficient frequency to show not only that it is practicable as a surgical procedure—*i.e.*, can be done without killing the patient on the table or causing him to perish immediately after operation—but that under certain circumstances it may be distinctly advisable.

According to Moynihan (*British Medical Journal*, Dec. 5, 1903) the first complete extirpation of the stomach was performed in 1883 by Connor. The patient perished on the table. A number of other partial extirpations was reported before the first successful total extirpation was reported by Schlatter. The entire organ was removed, and on microscopic examination the specimen showed the duodenum at one end and the esophagus at the other. The cut end of the duodenum was closed by suture and the esophagus was united to the jejunum. This patient, more than fifty-six years old, lived fourteen months, and then died of local recurrence. Her health after operation improved, she taking food and gaining in weight. The third case was a patient of Brooks-Brigham, in 1898. The duodenum was united to the esophagus by means of a Murphy button. The patient, sixty-six years old, recovered, and was well two years after operation. The fourth operation was performed by Maurice Richardson, the patient living eleven months and then dying of recurrence. Macdonald operated on a patient thirty-eight years old, uniting the duodenum and esophagus by a Murphy button. The patient was alive and well eighteen months later. In all Moynihan has collected sixteen cases, with six deaths and ten recoveries.

The junction between the intestine and esophagus was made by either simple suture or Murphy button, or the esophagus and duodenum were both closed by suture and a later anastomosis made, or the esophagus was closed by suture, and the open end of the duodenum was stitched to the skin.

Moynihan operated upon a patient aged forty-nine, with the typical symptoms of "leather-bottle stomach." On section the entire organ was found to be invaded by the growth, and the glands along both curvatures were enlarged. The entire stomach was removed. The cut end of the duodenum was closed by suture, and to the lower end of the esophagus a small clamp was temporarily applied. An anastomosis was made between the esophagus and a loop of the jejunum pulled upward through a rent in the transverse mesocolon and secured to the esophagus by a double line of suturing, and also another to the diaphragm. This suturing was made while there remained in position an esophageal tube passed downward from the pharynx and inward into the distal portion of the duodenum. This patient died of shock in six hours.

Of the seventeen cases reported thus far, then, the deaths numbered seven and the recoveries ten, an extraordinarily favorable result for such a formidable procedure, applied as it must be in the majority of cases to patients in a profoundly depressed condition. It has been argued that under no circumstances is this opera-

tion justifiable, since when the stomach is involved so extensively as to require it there will necessarily be metastatic growths elsewhere.

Moynihan, however, notes that an examination of many records, specimens, and cases demonstrates the fact that exceptionally the entire stomach may be infiltrated in the absence, even on minute post-mortem examination, of secondary deposits. The operative difficulties he holds are less than would be anticipated. He notes that the esophagus can be freed from its union with the diaphragm by stripping with the finger, though this is not desirable, and that the esophagus was in his case more accessible when the patient's neck was fully flexed, the chin being pressed downward in the sternum. He also found the use of the esophageal tube a distinct help, and he protests against the term gastrectomy being applied to the operation, in which a small part of the stomach is left.

The importance of Moynihan's communication is dependent not so much upon the apparent satisfactory mortality attending this operation, since based as it is on a statistical study of published cases it is doubtless misleading, but rather upon his statement that there are cases in which even if the stomach be completely infiltrated by malignant growth, the disease is still confined to this organ. If any such exist, the operation of total resection is indicated. The presence of nodules in the liver or evident irremediable metastases in other regions would, of course, contraindicate any but a palliative operation.

Reports on Therapeutic Progress

THE TREATMENT OF CHRONIC DEAFNESS.

In the *New York Medical Record* of November 2, 1903, KERRISON gives the following summary of his views:

1. There are certain cases of advanced catarrhal deafness—even among those in which no evidence of serious labyrinthine involvement can be found—which do not respond to treatment.

2. In the large majority of cases the power of audition can be distinctly improved.

3. In the early stages of catarrhal, or tympanic, deafness the majority of cases are susceptible of practical and complete cure.

4. In advanced stages of catarrhal deafness, rational treatment often results in an improvement, which adds greatly to the patient's enjoyment of life, though the normal hearing power may never be regained.

5. Where but slight improvement of hearing is accomplished, the result of treatment is often of value to the patient in arresting a process which might otherwise lead to very marked or total deafness.

A LARGE DOSE OF CHLORAL HYDRATE.

ACKER reports in the *New York State Journal of Medicine* for November, 1903, a case in which a large dose of this drug was taken without causing death.

At 8 P.M. on January 11, 1903, a messenger came to Dr. Acker's office and informed him that Miss A. C. N. had taken all of her sleeping medicine at one dose. He arrived at the bedside of the patient at 9 P.M., and learned from her friend that the patient had left her room on the second floor at 5 P.M.; she descended to the dining-room, where she secured the bottle and swallowed its contents—22 drachms—which contained 330 grains of chloral hydrate, 330 grains of potassium bromide, 2¾ grains of extract cannabis indica, and 2¾ grains extract of hyoscyamus. This was done during the absence of the patient's friend from the house, a period which did not exceed ten minutes.

The patient's condition when seen was as follows: Pulse 62 per minute, and feeble; respiration 14 per minute; pupils contracted, face flushed, extremities cold, and she was in a profound sleep, from which she could be aroused by violent shaking, but could not articulate a word.

Treatment.—First dose consisted of 5 drops of tincture of nux vomica, one teaspoonful of brandy, and one-half a teacupful of hot, strong coffee, and bags of hot water applied to the extremities and continued until the limbs regained their natural temperature. At each subsequent hour 2 drops of tincture of nux vomica, and all of the hot, strong coffee that the patient could swallow (about one teacupful), were ordered given. On January 12, at 9 A.M., the author again saw the patient. She could be aroused and could

speak. The same treatment was continued. January 13 she had apparently recovered, without any bad effects. The treatment was discontinued, and other remedies prescribed. She soon left her friend's residence, and when last heard from she had been placed in an asylum.

Acker finds on record cases in which 10 grains of hydrate of chloral have produced death, and cases where 350 grains taken did not result in the death of the patient.

PHYSIOLOGIC AND THERAPEUTIC ACTIONS OF ALCOHOL.

The *New York State Journal of Medicine* for November, 1903, contains an article by LAMBERT on this ever interesting subject. He sums up our knowledge concerning the drug in the following words:

Considering the physiological action of alcohol as a whole, the weight of evidence shows that it is less of a stimulant and more of a narcotic than was formerly believed. It is not a cardiac stimulant, and its action on the circulation as a whole is that of changing the equilibrium of the existing distribution of blood. How this is accomplished can only be explained at present by more or less probable hypotheses. Therapeutically, this effect on the circulation may be useful or not, depending on circumstances. In fainting attacks, in some forms of shock or collapse, when the pale, cyanosed appearance of the patient shows the blood is gone from the periphery of the body and is overfilling the vessels of the splanchnic area, alcohol acts quickly and advantageously by bringing an increased amount of blood to the brain, heart, and skin, and reducing the internal congestion. After exposure to cold, and in some forms of intestinal colic, it has a similar rapid and effective action. It has a useful narcotic action when sudden illness brings worry and distress to the patient. The euphoria produced by the alcohol is of advantage to the patient. The dual action of alcohol as a food and as a drug places it in its therapeutic consideration in a position by itself. This is especially true in its use in the infectious diseases. Many of us have seen some individuals in certain conditions of grave illness consume enormous amounts of alcohol with apparent benefit and not the slightest toxic symptoms, when under ordinary circumstances the same amounts would have produced the most profound intoxication.

The author's belief is that many patients suffering from infectious diseases do not need alcohol, and are better without it; certain patients need it under certain conditions, and are benefited by it. It is also his belief, founded on clinical experience, that because a patient has been accustomed to alcohol is not a sufficient reason for its administration in infectious diseases. Many alcoholics suffering from pneumonia will do better and recover quicker if deprived of alcohol than if given it.

When all is said concerning the value, under certain circumstances, of alcohol as a food, its use as such certainly belongs to its therapeutic place in medicine and not to its use in every-day life. Atwater correctly says that its place as a nutrient is where the user is unable, because of either debility or disease, to otherwise obtain fitting and sufficient nourishment from ordinary food materials.

Clinical experience is the final proof of the value of alcohol in disease, and though this experience has caused a lessening in its employment, compared with former times, and scientific research has proved its field of usefulness to be more restricted than was formerly accredited to it, alcohol remains a useful and beneficial drug. Like all our best remedies, it is a poison, and in its therapeutic use this fact should never be forgotten. Its abuse and its toxic action are probably the most wide-spread phenomena that come in the experience of physicians, but that action of alcohol does not come within the scope of this paper.

WHO MAY BENEFIT BY ALTITUDE TREATMENT.

HALL contributes to the *Medical News* of November 21, 1903, a paper in which he gives us good ideas as to this subject. He says that there is one variety of phthisis little dwelt upon in the text-books which should be mentioned, for the author believes that the cases last much longer in Colorado than in lower-lying regions. He refers to the type seen in certain young adults with moderate loss of weight, practically normal temperature, with little or possibly no appreciable dulness, but with constant cough, consider-

able expectoration containing abundant bacilli, great dyspnea, and upon examination, lungs bristling with fine moist râles. He has in mind three such cases, each of three to ten years' duration, with such slow downward progress that it could scarcely be noticed. He has never observed this type in New England, and doubts if it could exist there for such lengths of time. The prognosis is so much better as to time than one would at first believe that they should be carefully separated from the ordinary type, and sent to the high, dry regions. The dyspnea may be severe for a time, owing to the obstruction of so many bronchioles, but the disease process does not seem here to extend to the lung tissue as one would anticipate.

Persons with a bad family history of tuberculosis may well consider the advantage of moving permanently to a high, dry region before the advent of signs of the dreaded disease. In cases where the lung does not entirely reëxpand after pleurisy with effusion, two reasons should counsel us to send them to a considerable altitude: first, the rarer atmosphere favors the expansion of the crippled lung; and secondly, the development of tuberculosis is thereby directly rendered less likely. In addition, we have the general antituberculous effect of the climate, even though the lung cannot reëxpand because of adhesions.

There is no question that glandular tuberculosis progresses more favorably here than at sea level. This opinion is certainly held by Dr. Leonard Freeman and other surgeons of Colorado who have had experience both here and in large cities of the East.

Many cases of asthma are permanently relieved in this climate. The less the association with asthma, or its twin evils, chronic bronchitis and emphysema, the greater the chance of such permanent relief. If, however, the emphysema be not extreme, or associated with weakness of the right heart, such cases may be safely regarded as favorable for altitude treatment. The well known purity of atmosphere of higher regions does much more good than the decreased density of the air does harm, the relief of the spasmodic element and of the bronchitis being the striking features in bringing about the improvement.

Almost constantly in those who have lived for many years in the mountains one may observe an increased chest development virtually amounting to moderate emphysema. This is a compensatory process, because of the need of great lung surface. Its origin, however, should teach us that the improvement in asthma and chronic bronchitis in this region is in spite and not on account of the emphysema. On the plains of eastern Colorado the lower altitude is more favorable for cases with decided emphysematous changes.

The complication of tuberculosis of the lungs by organic heart disease often causes difficulty in deciding where to send a patient. The author believes we shall generally be right if we most respect the predominant condition. If any material dyspnea be caused by the heart trouble, only an incipient tuberculosis would probably be susceptible of improvement in a high altitude.

No especial difference is observed in the behavior of valvular heart disease or myocardial affections at Denver from that at sea level if compensation be good. If it be on the point of failing it is a risky experiment to send the patient to any great elevation. In such a patient scarcely any condition is susceptible to improvement by altitude treatment.

THE TREATMENT OF THE CARDIAC TOXEMIA OF PNEUMONIA.

A valuable article with this title is contributed to the *New York Medical Journal* of January 2, 1904, by ELSNER. In his opinion there are three remedies which, when properly administered, meet the indication presented by the circulatory changes of pneumonia due to paralysis of the vasomotor centers, the dilated condition of the arteries, and the weakened heart. These are strychnine, digitalis, and suprarenal extract, or adrenalin, its active principle. As to the use of strychnine and digitalis, the author simply gives his opinion that they should be used hypodermically. Adrenalin acts on the heart and blood-vessels favorably; it does not act on the vasomotor center; hence it may be used to assist strychnine. When the vasomotor center is exhausted and blood-pressure study proves the inefficiency of strychnine, adrenalin may still be administered, and in some cases which seem un-

promising, when combined with the method of stimulation about to be suggested, we may carry the patient beyond the critical period to a safe recovery. Suprarenal extract, or adrenalin, has seemed to act as a needed food in all infections where there is danger of myocardial degeneration. While writing this paper the author saw a case of pneumonia, in consultation with Dr. Doust, in a woman, the mother of five children, in whom it had been impossible to raise a continually lowering blood-pressure with strychnine. The systolic blood-pressure was almost immediately raised by the repeated administration at short intervals of fifteen minims of a one-to-one-thousand solution of adrenalin hypodermically, and the patient was saved.

With the large doses of digitalis recommended originally by Petresco the author has had no experience. To treat the cardiac insufficiency resulting from pneumococcus toxemia, the heart and vessels must be guarded against unnecessary wear and tear during the hours of imminent danger while the spinal centers are being exhausted. To bring to our notice the method of accomplishing this end is the object of this paper.

At this point the author quotes from a former paper, and says that the profession has long since learned the value of the diffusible stimulants. Unfortunately their effect is evanescent; the author's plan of treatment includes the administration of these at very short intervals during the continuance of cardiac asthenia. The stimulating effect must be continuous during the critical period. The remedy must be administered before the preceding dose has lost its effect. In no other way can we accomplish the desired result.

During the past the author has treated this condition by administering, every fifteen minutes, fifteen drops each of the compound spirit of ether, aromatic spirit of ammonia, the compound spirit of lavender, and the tincture of valerian. This is kept up day and night until the pulse shows improved tone and the heart action is decidedly better.

The valerian is added because of its quieting effect when administered in these small doses with the diffusible stimulants. Occasionally we meet patients who are unable to retain the mixture when it contains valerian, hence we have been forced to omit it and to substitute either pure whiskey or brandy in corresponding doses. If the compound spirit of ether is distasteful it has been omitted, and the dose of the ammonia and lavender has been doubled. The frequent administration of the compound has not seemed to annoy the patients, for as a rule they are not awake longer than is necessary to swallow the remedy. The author has still further insisted upon the internal administration every two, three, or four hours, according to the urgency of the symptoms, of 0.015 gramme (one-quarter grain) doses of sparteine sulphate, with from 0.24 to 0.36 (four to six grains) of caffeine. Both of these drugs must be administered in larger doses than are usually prescribed if desirable results are to be obtained. They affect favorably the weakness of the right heart.

Finally, the alcoholic stimulant upon which the writer depends is Tokay wine, and he asserts he knows of no stimulant which has accomplished so much, and which in his hands has saved so many patients, as this Hungarian wine. This is administered in tablespoonful doses every half-hour, and is given with the ethereal stimulant when due.

Occasionally it is necessary to use high rectal injections of coffee and whiskey, and hypodermic injections of ether, sterilized oil, and camphor during periods of collapse—with subcutaneous or intravenous injections of saline solution according to the method recommended by Henry.

The administration of the diffusible stimulants as above recommended, with the numerous other remedies suggested, may appear to be bordering upon polypharmacy. To this the author pleads guilty, but in extenuation he states that we are dealing with a condition of extreme danger—one which must be met by rigorous and continuous medication. The remedies are not antagonistic.

Because of these facts we must be ready to supply the remedy anew before the heart and arteries have again lapsed into a condition which, if allowed to continue, will favor the formation of heart clot, pulmonary edema, and carbonic acid poisoning.

Oxygen has been used in many cases in a sort of routine fashion, but the author has never been able to determine the relative value of this remedy. Pulmonary

edema with heart weakness presents a very serious complication. Here the lungs are flooded with a bloody serum, death following speedily in spite of any known remedy. Of the faithful administration of ethereal stimulants, a treatment which cannot be carried out without skilled and faithful attendants, the writer feels justified in speaking with great confidence.

Equally gratifying and satisfactory have been the experiences of his colleagues on the hospital staff, and of those met in consultation practice. He has abundant clinical proof in the records of desperate cases ultimately saved, in many of which the general condition of the patient hardly seemed to justify the great labor of carrying out the treatment. In the treatment of pneumonia it will always be rational to follow the teachings of Wunderlich and Liebermeister; these authorities hold that the temperature requires less consideration than does the pulse. To sustain the heart and vessels, to give to these the resistance needed that all may continue functionally active beyond the critical period, fortunately not long postponed, must be the object of the therapeutist in combating pneumonia toxemia; and it is held that the treatment with ethereal stimulants, given at short intervals with the other remedies suggested, leads to results which are life-saving and at times agreeably disappointing. However desperate the condition, the writer recommends persistence in the use of the diffusible stimulants, always administered with the idea of meeting the fading effects of the preceding dose.

TREATMENT OF TAPEWORM.

The *Medical News* of November 14, 1903, contains an article by S. P. GERHARD upon this subject. As he well says, the great drawback to nearly all the methods of treatment in this condition is the large doses of medicine required and the loss of time to the patient from his occupation during its application. In looking over some of the formulæ that are highly praised and which seem to be largely used by many regular practitioners, we find the dose measures a pint or more of a bitter and nauseating mixture which has to be taken at one or two draughts. In delicate, weak, and debilitated patients this is a serious matter, and the treatment then becomes almost barbarous.

In these days of elegant pharmacy and improved methods of administering drugs there is no need to keep to the old yet efficient methods, but turn our attention to applying these same old remedies in a better and much more acceptable form.

To this end the author has found a combination of two drugs, namely, male-fern and pelletierine, most suitable, applied in the following manner:

There is no necessity for the patient to make several days' preparation. The loss of one meal—a breakfast—is all that is required. In many cases the most convenient day to select for giving the medicine is Sunday, for the reason that most patients are at leisure at that time.

Instruct the patient to clear out the bowels the day previous with one or two large doses of castor oil or salts. One dose may be given in the morning and one at night, an hour or two after a light supper.

The next morning, as early as possible, say at six o'clock, give at one dose pelletierine tannate, 20 grains, in two capsules. In about two or three hours begin with the following:

℞ Oleoresinæ aspidii, ʒij;
Aetheris, f3ij;
Hydrargyri chloridi mitis, gr. xij.

M. et div. in capsulæ, No. xvj. S.: Two every ten minutes.

Of course it is understood that no food is taken during this time. In about two or three hours the worm will be expelled whole, with its head fastened to its neck.

Recently, in seven cases, the author has found this method to give successful results without any recurrence. It is generally difficult to find the head on account of its small size, and one cannot give assurance that there will not be a return of the parasite unless the head is found, or after the lapse of six or eight weeks when no segments are found in the stools.

It is well to instruct the patient to pass all bowel movements into a vessel of water on the morning the medicine is taken. In this way the worm can be secured when it is passed and saved for examination. No traction on the worm when it protrudes from the anus should be permitted for fear of tearing the head off and losing it.

The patient can then rest, and if there is any depression light food may be allowed. This depression is slight, and in

the author's experience has never been known to last longer than two hours.

[We cannot help feeling that the doses of pelletierine recommended are very large, being about twice the ordinary maximum dose. No oil should be used after giving aspidium.—Ed.]

ON BOLDNESS IN THE TREATMENT OF HEART DISEASE.

Morison in the *West London Medical Journal* for January, 1904, urges radical measures in the treatment of heart disease. He mentions the case of a patient with evidences of progressive cardiac failure. He is dyspneic in various degree, his cardiac area of percussion is increased, he shows the evidences in the heart, and it may be in other organs, of the effects of a residual accumulation of blood within the chambers of the heart, right or left, or both right and left. He is put to bed, his primæ viæ unloaded; his age, and the general state of his vessels and other organs, as well as the particular condition of his heart endocardially, myocardially, and pericardially, are taken into consideration. Finding, as is unfortunately found in many cases, that rest, dietetics, and general care have, unaided, little effect on his state, the influence of small doses of the infusion or tincture or powder of the well known pharmacological antagonists to cardiac dilatation and imperfect systole is tried, or combined with these, under certain circumstances, are mercurials, neural stimulants, or more powerful vasomotor agents such as the nitrites. Fortunately, in many instances, these measures are soon successful. Not every abdominal case comes to laparotomy; nor does every cardiac case require a bolder method of control. But, on the other hand, many cases unfortunately do require such treatment, if they are not to be allowed to drift into hopeless failure. The danger then lies, as in abdominal cases, in delay, with merely palliative treatment and the Micawber-like expectancy of something beneficial resulting from a timid use of agents and a plaintive hope in the recuperative powers of nature.

A large majority of the cases referred to are met with in people either young or in the prime of life. The vessels are pliant, the reserve force of the patient is commensurate with his development and age, but the golden bowl is broken at the cistern, and the silver cord is in imminent peril of being loosed, unless we can effectively come to the aid of the laboring heart and surcharged venous system. How are we to do this? How is the patient to be prepared for the action of an agent which, held by the physician in a vial, is as powerful for good and for evil as the knife which the surgeon holds in his hand. The vascular system of the patient must be relieved of a certain quantity of blood if necessary, varying from four ounces to half a pint, by venesection, which, for reasons we cannot consider now, is more effective than leeching; his anasarcous limbs must be drained by Southey's tubes, or by incision; fluid effusion hampering respiration in chest or abdomen must be removed so far as possible; and all this, not with any great expectation of these measures being successful in themselves, although this is not impossible, but to prepare the medical patient, as the surgeon prepares the surgical patient, for the use of the powerful agents which the physician has at his command. These are digitalis, or its congeners in action; and of these it is agreed that digitalis and strophanthus are the most useful, as they are also the most powerful, and that the tinctures of these, which contain all the active principles of the plant, are the most efficient, as they are also the least irritating, preparations of the drugs, in cases suitable for the method about to be described. Small doses, then, in the majority of cases have previously been tried in vain. So far as we can determine, the vessels in this patient are sufficiently normal, and the heart itself is untethered by firm extraneous adhesion. The drug is then given in 15-, 20-, 25-, or 30-minim doses in the adult at intervals of four hours, until a definite effect is produced upon the action, force, and capacity of the dilated and failing heart. This may require the continuous administration, in such doses, of the combined tinctures of strophanthus and digitalis, until 200 or 300 minims have been taken. The patient may feel a little nausea at the end of the course, but his laboring heart may be acting slowly, smoothly, and with increased force, and the patient himself experience a relief to which he has been a stranger for weeks. This effect may be permanent or it may be transient. The physician is not always successful any

more than a surgeon. But both have worked for and merited a success which they cannot always command. Man is mortal.

In laying emphasis on this principle of boldness in the use of the digitalis group under appropriate circumstances, a new doctrine is not inculcated, for it is as old as Withering, who first used digitalis with success in certain dropsies, of the organic cause of which he was ignorant, and it has been taught with no uncertain voice by others, and notably in recent times by the late Dr. George Balfour, of Edinburgh. But it is a doctrine which has been preached in large measure to deaf ears, and we still find Dr. Micawber, whether specialist or generalist, tinkering from week to week with doses and methods which are as likely to affect the action of such a heart as, to use Sydney Smith's simile, tickling the dome of St. Paul's is likely to convulse with laughter the Dean and Chapter of that celebrated fane.

THE TREATMENT OF TUBERCULOUS MIXED INFECTIONS WITH ANTI-STREPTOCOCCIC SERUM.

MENZER reports in the *Münchener medicinische Wochenschrift* of October 27, 1903, the results obtained in twenty-two cases of pulmonary tuberculosis treated with antistreptococcic serum. Of eleven cases treated during the first stage of the disease (Turban's classification), eight were cured in the sense that all catarrhal manifestations disappeared, and only slight dulness over the apices with insignificant changes in the character of respiration remained. Of eight cases in the second and third stages, one was cured and seven were improved. Three cases treated in the third stage were not benefited. The reaction began, as a rule, in from four to six hours after the injection was made, and consisted of headache, severe cough, and increased expectoration. The expectoration showed an abundance of streptococci and diplococci, and in some instances an increase in the number of tubercle bacilli occurred. The injections are repeated in from four to eight days, and the initial dose of 0.5 cubic centimeter in cases of the first stage was gradually increased until doses of 5 cubic centimeters were given. In cases in the second and third stages the initial dose was generally 0.2 or 0.3 cubic centimeter. The good effects of this treatment are supposed to depend upon the production of a reactive hyperemia in those areas of living tissue in which streptococci and tubercle bacilli are associated. This hyperemia diminishes the vitality of both organisms. Menzer has found that patients thus treated are more amenable to dietetic and hygienic measures, and he believes, too, that the destruction of streptococci, which are almost invariably present in cases of pulmonary tuberculosis, would enable the vital powers of the body to resist tubercular infection, even though no direct influence were exerted on the tubercle bacilli themselves by the antistreptococcic serum.

THE EFFECT OF LEMON JUICE IN THE MIXTURE KNOWN AS LEMONADE UPON TYPHOID POLLUTED WATER.

Some months ago secular papers teemed with reports dealing with this subject, and BISSELL makes in the *New York Medical Journal* of November 2, 1903, the following conclusions covering it:

First, that lemon juice in the proportion given has very little, if any, germicidal action upon typhoid bacilli.

Secondly, that this method of treating water to prevent a possible typhoid infection should be discouraged.

PHYSOSTIGMINE IN THE TREATMENT OF INTESTINAL ATONY.

As a result of experiments upon animals, CURLO, of Genoa, concludes (*La Riforma Medica,* Sept. 16, 1903) that physostigmine exerts a stimulating effect upon the muscular fibers of the intestine, thereby augmenting peristalsis. He finds that the nearer the drug is brought into direct contact with the intestinal mucosa the greater is the degree of peristalsis produced. Thus, even the smallest quantities introduced into the bowel through an abdominal incision cause marked peristalsis, and doses as low as one milligramme injected into the rectum give rise to considerable intestinal contraction, whereas when the drug is employed hypodermically, eight milligrammes is required to produce even slight contractions. Curlo has used the drug therapeutically as well as experimentally, and he states that it is

particularly useful in the treatment of constipation depending upon intestinal atony, and in meteorism. He considers the salicylate of physostigmine to be the best preparation for general use, the ordinary daily dose being from two to three milligrammes (1/30 to 1/20 grain), given in keratin-coated pills, which are not dissolved until they reach the intestines. For rapidly overcoming meteorism, however, one to three milligrammes may be dissolved in water and injected into the bowel. Suppositories containing two or three milligrammes of the drug have also been employed with good effects. Contraindications to the use of physostigmine are constipation due to spasm of the bowel, acute and chronic intestinal catarrh, and enterocolitis.

INTERNAL ADMINISTRATION OF ICHTHYOL IN PULMONARY INFECTIONS.

In reporting the use of ichthyol in pulmonary disease to the *New York Medical Record* of November 21, 1903, ROSENBERG tells us that the sputum was at once changed in character and amount, and cough entirely ceased within one month, at which time his patient's weight had increased fifteen pounds. The number of bacilli in her sputum after one month's treatment was reported by the health department as few. She made a gradual recovery. After nine months there were no bacilli to be found upon repeated examination. All medication was then stopped, and although this woman was kept under observation for over two years, there has been no return of either cough or tubercle bacilli in the sputum. Although the author does not put this remedy before the profession as a specific, he is positive that much good may be derived from the use of ichthyol, together with judicious hygiene and a sufficient dietary.

DIET AND DRUGS IN NEPHRITIS.

The *Medical News* of November 28, 1903, contains an article by GORDON on this topic. He thinks that the value of diuretics in acute nephritis when urinary secretion has almost or entirely ceased is a contested point. Theoretically, they may be contraindicated in many cases, and high authorities advise against them; but theories and the dictum of authorities often wane before facts. The author vividly recalls two cases of scarlet fever occurring years ago in his father's family. The good old family doctor made an acetic extract of iron, so to speak, by dropping rusty nails into vinegar and drenching his patients with the potion, and he also recalls how busy the attendants were kept carrying off the dropsy, and how rapidly the sick ones recovered. A year or two ago Gordon was called in consultation to a man suffering from acute parenchymatous nephritis. The kidneys had apparently stopped working, and nothing but the profuse diaphoresis maintained by the attending physician saved the patient from fatal uremia. It was concluded that infusion of juniper and bitartrate of potassium should be given. The result was magical; free diuresis set in, and the case rapidly went on to convalescence. Such happy results are often obtainable in chronic cases when the tubules become blocked. Irritating diuretics may do harm, but we are fortunate in possessing many agents which need not be mentioned, but which are non-irritating and productive of the greatest benefit. In this connection it is well to remember that an efficient cholagogue administered before the diuretic or in conjunction with it is a powerful auxiliary in the treatment. Free biliary secretion and open bowels are frequently sufficient to produce a prompt change for the better in the patient's condition.

The usefulness of diaphoretics, particularly in acute cases of nephritis, cannot be questioned. Such remedies are spirit of nitrous ether and solution of ammonium acetate, and others have their place, but for emergencies pilocarpus stands at the head for efficacy and promptness. Depression, it is true, may accompany its action; but used with caution it is capable of changing the condition of the patient from one of imminent danger to one of comparative or complete safety.

The author makes reference to the good effect of cholagogues, and thinks it hardly necessary to mention the value of hydragogue cathartics and salines both in acute and chronic cases, and to invoke their aid when dropsy occurs, or when diuretics and diaphoretics are contraindicated or fail in their action.

Nitroglycerin is oftentimes invaluable. In acute cases of nephritis with high pulse tension and diminished flow of urine its

place cannot be easily supplied, while in chronic interstitial cases its influence upon the general and upon the renal circulation is equally pronounced. The tolerance of this drug by many patients is noteworthy. When normal pulse tension fails and the heart chambers dilate, the resulting passive congestion is to be met with drugs which force the blood through the kidney. It is here that digitalis is preëminent. In the writer's experience it has no equal, and there are few patients to whom it cannot, in one form or another, be safely and successfully administered. Its substitutes, however, may be necessary and are not to be underrated.

Although the measures used in chronic nephritis are more hygienic than medicinal, there are certain drugs, outside of those employed in complications, which serve a good purpose. Among these iron stands preëminent, especially when anemia has set in and the blood-vessels need to be nourished and strengthened. As to the particular preparation of this agent, the author admits a growing confidence in the old tincture of the chloride of our fathers and grandfathers. Much depends upon the dose and its combination with correctives and synergists. Bichloride of mercury, dilute hydrochloric acid, and liquor of the chloride of arsenic are valuable auxiliaries, whose action, whether singly or in combination with iron, is oftentimes forcibly demonstrated in interstitial cases. In parenchymatous nephritis, with anemia, dropsy, and deficient urinary secretion, the time-honored Basham's mixture can hardly be dispensed with, as it is both a reliable hematinic and diuretic. It is encouraging to observe pale urine becoming normally colored under the use of iron; this effect being one which the author desires and endeavors to obtain, and which was very noticeable in the cases of some young children which he had the opportunity of observing. When the tincture fails, other preparations of iron can be used with advantage.

In uremic convulsions no one doubts the efficacy of chloral hydrate and the bromides. There may be those who would be disinclined to use morphine, but the author does not hesitate to invoke its aid. He believes it is the only drug which in certain cases will put the physician in command of the situation, and the patient is entitled to the relief or alleviation which it secures. He asserts he has never had reason to regret, on account of any injurious effects, the use of morphine when circumstances seemed to demand its employment. That it may do harm is undeniable, but unpleasant effects can be prevented by not giving too large a dose. Veratrum viride is a remedy with which the author's experience is limited, although its virtues as a reducer of pulse tension and an internal bleeder are well established. In acute inflammatory conditions, with a strong pulse, the good results obtained from aconite must not be forgotten.

THE TREATMENT OF INFANTILE SYPHILIS BY HYPODERMIC INJECTIONS OF BINIODIDE OF MERCURY.

SCHWAB and LEVI-BING in *La Presse Médicale* of October 31, 1903, report five cases of hereditary syphilis in infants which they treated satisfactorily by means of hypodermic injections of biniodide of mercury, in doses varying from one to two milligrammes, administered once daily, in aqueous solution. The injections were well tolerated, produced no local irritation, and were followed by rapid disappearance of the cutaneous and visceral lesions. All the children gained in weight from the time that treatment was begun. The ages of these patients ranged from one day to three months.

OIL OF CADE IN THE TREATMENT OF SIMPLE CHRONIC LICHEN.

CARLE reports in *Lyon Médical* of October 18, 1903, good results from the use of oil of cade in the treatment of simple chronic lichen, having employed it in twenty-one cases, of which number ten were entirely cured, eight were very much relieved, and three were not at all benefited. The time required to effect a cure varied from one to four months. Carle thinks that the drug is best employed in the form of an ointment made with lanolin or with cocoa butter and vaselin, and he found that at least as much of the drug itself should be used as of the excipient, weaker ointments failing to produce satisfactory effects. The ointment is applied to the patch of lichen by means of active friction continued for at least five minutes, the application being made preferably at night, and the part covered with a piece of gauze. In those cases which were

cured, the itching was relieved after four or five applications had been made. Soon afterward the infiltration began to subside, and the pigmentation gradually faded. No constitutional treatment whatsoever was employed. Some of the cases which were cured had lasted as long as eight or ten years.

EMPHYSEMA AND BRONCHITIS.

In the *Clinical Journal* of November 4, 1903, SMITH, of London, in speaking of the treatment of these affections says that he has learned a little trick by experience which he thinks is worth mentioning: it is when coughing to forcibly hold the arms into the sides so as to assist by compression the expiratory forces. It helps to clear the bronchi with less violence and less prolongation of the cough, both of which are points well worth bearing in mind.

Should the patient have unfortunately got an attack of bronchitis complicating his emphysema, it is obviously our object to cure him as speedily as possible, for each attack, and especially if it is prolonged, leaves some scars behind it. The author adds nothing new to what we all know as to the treatment of bronchitis, unless it be as to the great use he has found in an old-fashioned remedy, viz., syrup of tolu, and also in one new one, viz., creosote. It is usually assumed that this latter is good for tubercle only (the author believes it comes for tubercle as near to a specific as we are likely to get, unless through some antiserum discovery), but he has tried it in many cases in which he did not suspect tubercle, as well as in those in which he did, and found it of the greatest possible benefit in cases that were apparently simple catarrh only, especially in combination with cod-liver oil. Another point is this: if the patient is in the habit of having a cold bath in the morning, don't stop it; it is in itself a healthy habit, and in a bronchial attack assists most materially in clearing the tubes.

Lastly, we have to consider the treatment of the heart in emphysema, whether it be simple emphysema or complicated by catarrh; and upon this subject the author makes one or two remarks which are by no means new, but which are so important that they will well bear repetition and emphasis. A word or two on bleeding, for instance: the author is convinced that it has gone too much out of fashion, and is sure he has saved several lives, temporarily at any rate, by a timely bleeding from a vein. It will not, of course, cure either the emphysema or the heart condition, but if matters have not gone too far it will restore a balance between the heart and its work which has been lost, and it may be that the balance may remain adjusted for quite a long interval. Blood must, when necessary, be taken freely—*i.e.*, not less than ten ounces from an adult, and better, the nearer to twenty ounces we can go. In his opinion, the necessity is measured by two factors: (1) the blueness of the lips and nose, and (2) the breathlessness of the patient. It makes one feel as happy as a surgeon after a successful operation to see the relief rapidly stealing over the patient as the blood flows more and more freely. Then the use of opium and morphine in heart troubles must be considered. It is well worth bearing in mind that morphine is one of the most, if not the most, valuable cardiac tonics we possess. It may be that it is not its true pharmacological effect upon the heart itself that is of value, though of this there is a good deal of experimental evidence when used in small doses; but much more important is the sleep it induces in most cases. Insomnia is one of the most distressing features of cardiac trouble, and a night's quiet sleep will do more to restore the body than anything the author knows of; and if, say, one-eighth grain morphine be injected, it rarely fails to give sleep. He admits that heroic doses are not advisable, but cannot make out whence comes the dread of morphine entertained by practitioners. Lastly, he adds a few practical words on digitalis, which of all the list of direct cardiac drugs—convallaria, strophanthus, etc.—seems to be the reliable one, and one that maintains its position through the changing fashion. The author's own experience convinces him that it is usually given in too large a dose; if three or four minims of the tincture, or one drachm of the infusion, or one grain of the powdered leaves do not help us, he has never found it of the slightest use to increase the dose, and with larger doses the alleged cumulative action is more likely to appear. He says alleged, because when one knows that

digitalis is a drug that is moderately quickly absorbed and very slowly excreted by the urine, then he says that he who gives digitalis and pushes it without noticing the daily quantity of urine is at fault, and not the drug he is carelessly using.

THE THERAPEUTIC POSSIBILITIES OF RADIUM.

The *Boston Medical and Surgical Journal* of November 5, 1903, sums up this novel and interesting subject as follows:

Up to this time it apears that radium has certain qualities hitherto unknown to chemical physics. For example, it gives out heat constantly, and is the source of a high degree of energy. It is capable of rendering active, substances with which it is brought into contact; it has marked physiological effects; it is fatal to life under certain conditions; and finally it is apparently curative of certain pathological conditions. An idea of the energy of radium may be had from the statement made by Professor Curie that it maintains its temperature at 1.5° C. above its surroundings, which is equivalent to saying that the heat evolved from pure radium is sufficient to melt more than its own weight of ice every hour. The facts that this evolution of heat is constant, and that radium loses none of its activity in consequence of its emanation, are the matters of interest confronting the scientific world. The character of the rays given off from the substance is as yet somewhat undetermined, but at least three varieties have so far been distinguished. In consideration of the extraordinary properties to which we have alluded, it is not a source of wonder that animal life is positively affected by the presence of the substance. Animals exposed to the salt contained in a closed tube succumb to its effects in varying periods, depending upon the time of exposure, after undergoing certain cutaneous and nervous changes. Apparently, also, the salt is capable of checking the normal development of the lower forms of animal life, as, for example, preventing the transition from the larval to the adult form in certain worms.

All this suggests at once the possible danger in the therapeutic use of the substance, and also its utility when properly controlled. Naturally experiments up to this time in treatment of diseased conditions have been few, owing to the very great difficulty of obtaining the substance. In the *British Medical Journal* of July 25, 1903, Mr. John MacIntyre writes briefly in continuation of a previous article on work which he has done. He found that lupus and rodent ulcer were very favorably affected by exposure to the rays. Mr. Frederick Soddy also suggests the possibility of applying the rays of radium and thorium to the treatment of consumption. The theory being that inhalation of radium solution gives rise to the formation of a film of radioactive matter which persists for a certain definite time, it is conceived possible that radium would continue to exert its activity in the air cells of the patient's lung after the emanations themselves had been exhaled.

All this is to a certain extent theoretical as yet, but in view of the extraordinary impetus which has been given to the therapeutic action of various little understood rays and emanations by the introduction of the *x*-ray, we have no right to assume any other attitude than one of expectant anticipation. It is perfectly clear that radium and the various substances which apparently are related to it have a definite physiological action on animal tissues. This being the case, it remains, as in other therapeutic matters, to determine sharply between the limits of danger and benefit. That this will be done experimentally in the near future there can be no reason to doubt, and we are certainly not too optimistic when we express the belief that new and serviceable therapeutic agents, through such investigations, will be found for a goodly number of human ills.

THE RED-LIGHT TREATMENT OF SMALLPOX.

Some time ago we published in the GAZETTE an article in which Schamberg of Philadelphia made an unfavorable report on the plan of treating smallpox. In the *Journal of the American Medical Association* of November 14, 1903, FINSEN replies to his attack and states that the two conditions indispensable to success are as follows, if good results are to be obtained, viz.: (1) The patient should be placed under treatment sufficiently early, and (2) the chemical rays of daylight should be absolutely shut out. The efficiency of the method is so certain that

in case suppuration should occur in a patient who was placed under treatment in proper time, the first thing to be thought of is that from want of care, either on the part of the patient or of the nurse, daylight may have penetrated. Therefore, before the method can justly be declared a failure the thoroughness with which it is carried out should be tested by exposing photographic plates or sensitized paper as a means of control in different places in the sick-room. If these photographic plates show the influence of white light the technique of the treatment has been imperfect. A few of those who have applied the method have at the same time treated the patient by other remedies as well. Such a course is objectionable for scientific purposes, as it is then impossible to decide which agency is responsible for the results. In order to give the experiments decisive scientific value they should be carried out under strict control and the patient placed under the treatment in proper time.

RADIUM AND ITS THERAPEUTIC EFFECTS.

This interesting subject is considered by MACINTYRE in the *British Medical Journal* of December 12, 1903. As he well says, any statement made at present about the therapeutic effects of radium can only apply to the experimental stage of inquiry. Three questions at least may be asked, however, and these are: (1) Have the salts of radium any therapeutic value? (2) In what class of diseases are they likely to prove useful? (3) How do any results yet recorded promise when compared with those obtained from other agents, such as the Finsen light, *x*-rays, or high-frequency currents, because the phenomena observed, when studying the salts of radium, suggest at once the possibility of therapeutic action similar to that due to the last named forces? It may at once be said, from the experiments already published, that to some extent they possess therapeutic value, and for the most part, as yet in the same class of cases in which the other forces have already been tried with success. The third question is more difficult to answer, for reasons which will appear in this paper.

It may be as well to state here that, just as in the case of all other branches of electrotherapeutics, we have not yet any record of great improvement or cure in any case of serious malignant disease situated deeply in the tissues or within the great cavities of the body. Any records of results so far obtained have been in the superficial parts or within the accessible cavities. It has been suggested that small quantities of radium might be introduced into the deep tissues in serious malignant diseases and left there, but most surgeons after studying the properties of radium will meantime be careful in carrying out the suggestion, and take due precaution that the active agent can be withdrawn again if required. Be that as it may, no results of such a suggestion have so far been fruitful.

During the past six months we have learned much from the physical laboratory about the properties of radium which have a distinct bearing upon surgical work. To begin with, the one important thing when experimenting with a new agent is to find out its nature and strength. At first, when the radium salts were obtained, many concluded that all that was required was what the makers termed a chemically pure salt of the element, if element it be. This is not so, because the salts which are offered to the surgeon vary very much in what is to them the most vital thing—namely, radioactivity. Apart altogether from its enormous cost, the experimenters have the greatest difficulty in obtaining suitable specimens. A considerable number of medical men and others have submitted samples of bromide of radium to the author for an opinion, and he feels bound to state that many of them were doubtfully of any therapeutic value. It would be of the greatest value to the profession if some standard measurement could be obtained, because once in possession of this fact experimenters could regulate the dosage by the distance at which they held the salt from the part, and the time during which it was applied.

Unfortunately no such standard is easily available, and we have to fall back upon the following: (*a*) The physiological effects when applied to the tissues of a normal subject which involve discomfort and risk; (*b*) the action upon photographic plates; (*c*) the fluorescence upon a suitable screen; (*d*) the power to discharge the electroscope. Some experimenters like Mr. Soddy have methods of

their own by means of liquid, but these are complicated. In any case every experimenter should not only ask for chemical purity of the salt, but also for some guarantee of radioactivity, and he will find all sorts of figures mentioned, from 40 units (uranium being the unit) to 1,800,000 units of radioactivity. A further test, of course, may be had when once the surgeon has obtained results in a case, because he can compare one with another.

The second important question is to be found in the fact that the emanations are not all of the same kind. Since the author's last communication to the *British Medical Journal* much has been learned from the physicists about the rays which emanate from radium, owing largely to the brilliant researches of M. Curie, Professor Rutherford, Sir William Ramsay, Mr. Frederick Soddy, and others. In the paper referred to it was suggested that the physicists divided the rays into three kinds, called respectively *a*-, *b*-, and *y*-rays, and it was understood that the *a*-rays are new, whilst the second set resemble the cathode ray, or what Lenard first described, and the third set correspond to *x*-rays. Some doubt has been thrown upon the last named, and various workers have expressed different opinions on the subject. Lord Kelvin states that the experimenters believe the *a*-rays to be positively electrified bodies larger than those constituting the second set. They are easily stopped by solids, liquids, or gases, and they are acted upon by a magnet. The *b*-rays are much smaller and are probably atoms of radium or perhaps molecules of bromide of radium, negatively electrified, easily influenced by the magnet, and corresponding possibly to the corpuscles and electrons or the fine particles of matter which make up the cathode stream in the Crookes tube. Lord Kelvin goes on to say that a simple *prima facie* view is to regard the third set as merely vapor of radium. These rays are neutral and are not acted upon by the magnet. In support of this view Strutt comes to the conclusion, as the result of experiment, that in some ways the *y*-rays behave differently from the Roentgen rays. Clearly, therefore, it is important that surgeons should discover which of these rays may be the active agents.

Inasmuch as frequently the salts are applied through mica, paper, glass, or aluminum screens, it is difficult to conceive how these can affect the tissues. This reduces the question to the other two. While there is some doubt as to the third set, and will be until more is known about them, it is natural to think that the *b*-rays have more to do with the results. This view is further strengthened by the fact that even if the *y*-rays were proved to be *x*-rays, they are so small in quantity that, knowing what we do of the results of the powerful *x*-ray tube, it is difficult to see how they can produce the result. If we accept this view of the question then the *b*-rays are probably the powerful agents upon the tissues. In a commuication to the author Lodge is inclined to accept this view, of course with all reservation in the present state of our knowledge. In any case the subject is of importance, and further experiments are necessary.

What we do know, however, at present is that the *b*-rays are more penetrative than the *a*-rays, and that the *y*-rays are still more so. It does not, however, necessarily follow from what has been said that the *a*- or *y*-rays will not be proved to be of therapeutic value. On the contrary, many think they may be, and Mr. Soddy in the pages of the *British Medical Journal* suggested inhalations of the *a*-rays in respiratory troubles, and his idea was based upon physical research and their bactericidal properties.

From the fact that radium is usually applied through screens, when treating neoplasms the *a*-rays can scarcely reach them, and therefore whatever results have been obtained in these affections are not the result of their application. It remains to be seen, however, whether they will have an effect when applied differently. For this reason some experimenters are having salts of radium applied on paper, like a plaster, but of course in this case the tissues are subjected to all three emanations. Sir William Ramsay and Mr. Soddy have shown that the emanation is a gas and that this contains helium, which itself is one of the most inert substances known. The spectrum of it is not got at first from the *a*-rays, but it subsequently appears. This has led to the view that radium is not an element at all, and that it is being split up into simpler elements. This involves another question, that secondary or more changes are taking place and that necessary forces are liber-

ated. What effect these may have upon normal or diseased tissues when applied to them cannot be stated at present. Another important phenomenon as a result of the emanations is the power of fluorescence which these rays possess, and also the most extraordinary thing yet recorded of radium, namely, its power of constantly giving off heat. The possibilities of all these things must be thought of when we are trying to reason out the effects of the agent upon diseased tissues; also that they are, when in sufficient quantity, destructive to life. At present, however, nothing definite can be stated.

ABUSE OF NITROGLYCERIN.

In the course of an article on the management and treatment of typhoid fever in the *Medical News* of January 2, 1904, LEFEVRE makes the following well timed remarks:

Frequently in acute collapse, or when cardiac weakness has reached the point of causing the pulse to become dicrotic, nitroglycerin is given at frequent intervals with the idea of diminishing the work of the heart. In acute cardiac collapse Romberg has shown that there is already vasomotor paralysis, and that the failure is more vascular than cardiac, and nitroglycerin cannot under these circumstances relieve the condition. In the later stages of the disease when the pulse is dicrotic, the dicrotism is due to the relaxed condition of the arteries, and the giving of nitroglycerin does not relieve the heart, but on the other hand destroys the normal control of the circulatory system. Nitroglycerin should only be given when arterial tension is relatively too high for the cardiac power, and then only to carry the patient over the immediate danger. It is not a drug that should be given continuously for any length of time.

EXPECTORANTS, COUGH MIXTURES, AND INHALATIONS.

In the *Postgraduate* for December, 1903, CAILLE gives the following suggestions as to the use of expectorants and cough mixtures:

Cough is an expulsive effort at expectoration, and unless extremely harassing should not occasion alarm. When a cough takes its origin in the nasopharynx, nasopharyngeal toilet (salt water or petrolatum spray) is indicated, or local cauterization with a two-per-cent solution of nitrate of silver.

To allay reflex irritability and check cough, opium and its preparations may be given, with or without expectorants.

Expectorants are occasionally necessary to aid nature in expelling secretions, particularly in feeble children and very old people. Ipecac, ammonia, benzoic acid, camphor, iodide of potassium, are examples of expectorants. Free expectoration is more readily obtained when the patient receives plenty of water.

The writer makes use of the following formulæ in his practice:

℞ Tinct. opii camphorat., f3ij.

Signa: 5 to 15 drops in sugar-water once or twice at night to check cough in a child. To be used only in urgent cases.

℞ Tinct. opii camphorat.,
Vini ipecacuanhæ, āā f3ij.

Dose: 10 to 15 drops. Sedative and expectorant for a child.

℞ Liq. ammon. aromatici, f3ij.

One-half to 5 drops in sugar-water several times a day for children and adults. Expectorant.

℞ Ammonii muriatici, 3ss;
Tinct. opii camphorat., f3j;
Syrupi pruni virginianæ,
Aquæ dest., āā f3j.

Dose: Teaspoonful every three hours for adults to check cough.

℞ Potassii iodidi, 3j;
Tinct. opii camphorat., f3j;
Liq. ammon. aromat., f3ss;
Syrupi tolutani, f3vj;
Aquæ, q. s. ad. f3iv.

Dose: ½ to 1 teaspoonful three to four times a day, as an expectorant for children and adults.

℞ Pulv. camphoræ, gr. ss;
Acidi benzoici, gr. ij.

May be taken in sweetmeats three times a day as expectorant for children.

Terebene and terpin hydrate may be taken for any form of chronic bronchitis as an expectorant; the dose is from two to five drops in syrup or on sugar, and it may be administered by inhalation in all throat affections (two ounces per week). Sedative and expectorant troches are sold in the shops ready made. They are useful in slight ailments.

Inhalations.—The various saline antiseptic and balsamic inhalants in the shape of vapors and sprays are of little value compared with the soothing effects of breathing and living in the pure, fresh, dust-free air of the mountains or seashore.

Inhalation therapy is quite popular among the laity and is a routine method of treatment in sanitaria. In private practice in cases in which a moist atmosphere would probably favor expectoration, moisture may be increased by evaporating water from an open vessel or croup kettle, to which may be added turpentine, the oil of eucalyptus, compound tincture of benzoin, terebene, or creosote, etc.

The upper respiratory tract may be lubricated by means of an inexpensive hand atomizer containing benzoinated petrolatum.

Oxygen inhalations are employed in a routine manner. The author has never observed any marked beneficial effects from oxygen inhalations in hospital or private practice.

SUGGESTIONS ON THE TREATMENT OF DELIRIUM TREMENS.

KELLY draws our attention in the *Cleveland Medical Journal* for November, 1903, to the fact that there is evidently a remarkable difference of opinion among authors who have laid down rules for the treatment of this disorder. For example, Osler and Berkley, on the one hand, state respectively that "alcohol should be withdrawn at once unless the pulse is feeble," and that "alcohol in all forms should be absolutely prohibited from the onset of the treatment unless there is a marked tendency to heart weakness and collapse." On the other hand, the American Text-Book of Surgery says: "The prophylactic treatment consists in the employment of alcoholic stimulants in moderate quantities of capsicum and digitalis, and of nourishing food;" and that "during the attack mild stimulation with liquor or beer is usually advisable."

As regards the statements of Osler and Berkley, it can hardly be gainsaid that in all cases of delirium tremens there is from the very beginning a decided depression of the circulatory system characterized by feeble pulse and other evidences of such depression; and also that unless there is an organic circulatory lesion, the degree of feebleness of pulse and tendency to heart weakness is always in direct ratio to the severity of the disease. The advice in the American Text-Book is, it seems, much more to the point.

It has been observed that the symptoms characterizing what has been termed the first stage have invariably disappeared when alcoholic stimulants were given in sufficient quantity, especially the tremor, fear, and loss of appetite. Ordinarily an ounce of whiskey or brandy with half a pint of water is given every two or three hours, the amount being varied of course in accordance with the severity of the symptoms and gradually decreased. The doses should be large enough to control the symptoms and no larger. When it is learned what amount of alcohol will do this, and the patient begins to eat, diminution should be commenced and continued as rapidly as the condition will permit. The doses can usually be decreased to *nil* in less than a week. If shock from traumatism, or exposure to other cause, is present, more alcohol is required than if this complication were absent. If the culminating phases of the disorder have developed before the patient is seen, the outlook is of course not so good, but alcohol is beneficial if the patient will accept it. If he should not, then other remedies must be relied upon. With the return of appetite and ability to retain food the patient should be given as much light nourishment every two or three hours during the day as he can apparently assimilate. Other remedies of value are warm baths, plenty of light and ventilation, and moderate exercise. The author thinks that nux vomica, capsicum, and the bromides are indicated at times. He has observed no good results in these cases from the use of either chloral or morphine, and is even inclined to regard their use as injurious.

SEVERE PAIN CAUSED BY BLOOD-PRESSURE.

The *Physician and Surgeon* for October, 1903, in an article by INGLIS has this excellent advice to give in regard to certain forms of pain:

There are many cases of intense pain clearly due to temporary increase of arterial pressure, with localized hyperemia. The unbearable headache of intense cerebral congestion, such as occurs at the time of a sunstroke or as a subsequent effect of sunstroke, is an instance in point. A similar congestive headache not infrequently follows severe blows on the head. Many cases of migraine are of the congestive type; such patients often show visibly

swollen, tortuous temporal arteries. Neuralgias in all parts of the body, including those of the internal viscera, are often either due to, or at least accompanied by, such arterial tension. Every medical man knows how these conditions are particularly apt to occur at or near the menstrual period in woman—a time at which arterial turgescence seems to occur in the most diverse parts of the body. Brain tumors exhibit the singular feature that, while the tumor is always present and slowly growing, the frightful headache is intermittent and recurs in paroxysms. These paroxysms must be due to some cause acting in addition to the mere presence of the tumor. That cause seems to be a changing degree of cerebral congestion. Tumor plus congestion, and we have unbearable headaches. The congestion relieved, the pain abates.

Dr. William Browning, of Brooklyn, published an excellent article in the *Journal of Nervous and Mental Disease* on "Relief of Pain in Tumors of the Brain." The following extract gives the gist of the article: "One unquestionable advantage of the use, which the author has so strongly advocated for a number of years, of the vascular agents (whether to increase or depress the blood-pressure) is that they act in an intelligible way and not in some presumed or speculative manner. Their influence can be pretty definitely foretold and its effects controlled; hence the remedy can be fitted to the case. In other words, they are rational remedies and meet the demand for both honesty and exactness in practice."

The method in the present instance is very simple. It consists in the administration of such depressants as aconitine, veratrum, or gelsemium in doses sufficient to soften and control the pulse. The amounts required are not far from those which were recommended in the abortive treatment of apoplexy (*New York Medical Journal,* Feb. 15, 1902). The remedy can be continued as required, though the condition of the circulation should be frequently observed and the amount of the drug regulated according to the necessity of the case and the way it is borne. The dosage in any particular case is kept where it does not dangerously reduce the pulse on the one hand, and yet controls the pain on the other.

This plan may not at any and every instant completely stop pain, but it holds it within bearable limits, and may be all that is required even when the course of the trouble extends over many months. It appears to accomplish quite as much as the method of symptomatic trephining, which was proposed for a similar purpose, and to do this without any of the operative drawbacks.

Doubtless the thoroughness with which pain can be controlled in any given case will depend somewhat upon the manner in which it is produced. Clinically we have, besides those relatively fortunate cases without pain, certain types, and we can trace the source of the pain to at least three factors: (1) There is the local and more or less general increase of intracranial pressure, as occurs most typically in intrasubstantial growths. Where the pain is thus directly due to pressure, it is less intense, but may be more continuous, like a deep ache. In this form marked relief may be expected. (2) Then there is the paroxysmal augmentation of arterial pressure in certain cases, to which reference will be made more fully. It is in these attacks that the terrific pain-seizures occur, and correspondingly this form should be relieved most of all by depressants. It is really here that we most need analgesics, and that opiates fail except to stupefy. (3) But when on the contrary the pain is the result of direct implication or stretching of external structures, as the meninges or outgrowing nerves, and we get instead neuralgias and localized pains, then the good to be realized from depressants may be only proportionate to the degree in which pressure is a factor. And in fact it is supposed that in this last type of cases pain is especially likely to be felt.

It is fair to ask whether this plan has any injurious effect on the course of the trouble itself. Nothing of the sort has been apparent in any case, nor is there any theoretical reason for suspecting harm. So far as one can decide, life has if anything been prolonged. On paralysis, if present, it can hardly have much effect either way.

Browning has in mind the pain of brain tumors, but it is at once evident that the therapeutic application of the idea is a wide one. Congestive neuralgia of the ovaries often is used as reason for their removal. It would save some useful ovaries if arterial depressants were used

more generally. The use of gelsemium or aconitine in trigeminal neuralgia is fairly common, but there are other visceral neuralgias which would seem equally adapted to such treatment.

The trouble is we are afraid of arterial depressants just as we seem frightened to bleed or give emetics. As a matter of fact the heart will stand a tremendous amount of depression safely, provided it be not too suddenly injured. We all know it, yet we give arterial depressants reluctantly. It is a mistake. Browning's suggestion is an excellent one.

LARGE DOSES OF BINIODIDE OF MERCURY IN INFANTILE THERAPEUTICS.

BRETON, of Lyons, in the *Revue Mensuelle des Maladies de l'Enfance* for December, 1903, calls attention to the utility of hypodermic injections of biniodide of mercury in the treatment of hereditary syphilis. He finds that children tolerate large doses of strong solutions of the drug, and he recommends as an ordinary dose .06 at intervals of five to eight days, according to the severity of the specific manifestations. A perfect solution of the mercurial is obtained by adding a small quantity of potassium iodide, and for this purpose Breton recommends a few drops of the following solution: Potassium iodide, 1 gramme; distilled water, 4 grammes. Subcutaneous injections produce very painful swellings which do not disappear for some time, and for this reason intramuscular injections are to be preferred. They are somewhat painful, but do not cause as much discomfort as the subcutaneous injections. Detailed reports of several cases are given.

PROPRIETARY MEDICINES.

A rather interesting communication on this subject is made to the *Lancet* of November 28, 1903, by HUTCHISON.

The author wishes it clearly understood that his analyses make no pretense of perfect accuracy. The analysis of many of the preparations, particularly such as are of vegetable origin, is often a very difficult matter, and it has been found impossible to give quantitative results. The author believes, however, that he has succeeded in representing the active constituents in most, if not all, cases.

APPROXIMATE INGREDIENTS OF VARIOUS PATENT AND PROPRIETARY PREPARATIONS.

Aperient and Liver Pills.

Beecham's Pills: Aloes, ginger, and soap.

Baillie's Pills: Aloes, colocynth, oil of cloves, and soap.

Bile Beans: Cascara, rhubarb, licorice, and oil of peppermint, coated with gelatin.

Cockle's Pills and Barclay's Pills: Aloes, colocynth, and rhubarb.

Carter's Little Liver Pills: Podophyllin (one-eighth grain) and aloes soc. (one-third grain) in each pill.

Dixon's Pills: Taraxacum, podophyllin, jalap, and soap.

Holloway's Pills: Aloes, rhubarb, saffron, Glauber's salts, and pepper.

Page-Woodcock's Wind Pills: Aloes, oleum carui, and soap.

Scott's Pills: Aloin and cascara with a soap basis.

Whelpton's Pills: Rhubarb, aloes, ginger, pulv. ipecac, and soap.

Saline Aperients.

Eno's Fruit Salt: Bicarb. soda, tartaric acd, and citric acid.

Lamplough's Pyretic Saline: Citric acid with bicarbonate of potassium and sodium.

Abbey's Salt: Tartaric acid with bicarbonate of sodium, sulphate of magnesium, and sugar.

Cough Mixtures and Lozenges.

Congreve's Elixir: Benzoic acid, infusion of elderberries, alcohol, and allspice.

Keating's Cough Lozenges: Ipecac, lactucaria, squill, licorice, tragacanth, and sugar.

Owbridge's Lung Tonic: Balsam of tolu, oil of aniseed, and oil of cloves.

Balsam of Aniseed: Contains aniseed and other ingredients with one-tenth of a grain of morphine in every ounce.

Preparations for Gout and Rheumatism.

Eade's Pills: Salicylate of sodium, guaiacum, and aloes.

Gloria Tonic: Colchicum, guaiacum resin, and iodide of sodium.

Blair's Gout Pills: The active ingredient is colchicum.

Preparations for Headache and Neuralgia.

Antikamnia: Bicarb. of sodium, antifebrin, and (?) caffeine.

Bromidia: Bromide of potassium,

chloral, hyoscyamus, cannabis indica, oil of aniseed, syrup, and water.

Hunter's Nervine: Creosote, chloroform, camphor, balsam of tolu, and alcohol.

Kapluine: Antifebrin and sugar (colored).

Kay's Tic Pills: Sulphate of iron, quinine, and soap.

Preparations for Asthma.

Crevoisier's: Belladonna, foxglove, stramonium, sage, and nitrate of potassium in equal parts.

Hair's Cure: Iodide of potassium and tar water.

Plant's Cigarettes: Leaves of stramonium, lobelia, and green tea.

Packer's Cure: Atropine, cocaine, hyponitrous acid, and various balsamic extracts, administered by means of an aeriser.

Remedies for Obesity.

Trilene Tablets: Sugar and a vegetable constituent of unknown nature.

Grey's Specific: Contains 47.2 per cent of free sulphur and a bitter (? gentian).

Mrs. Frost's Anti-Obesity Remedy: The active ingredient is extract of fucus vesiculosus.

Russell's Anti-Corpulent Cure: Citric acid (20 grains to half an ounce), glycerin, and water. The Pink Tablet-Saccharine.

Miscellaneous Preparations.

Buer's Piles Cure: Ointment—gall and hamamelis with lanolin basis. Powder—Precipitated sulphur and carbonate of magnesium.

California Syrup of Figs: Senna (active constituent), syrup of figs, and cinnamon.

Doane's (Backache) Pills: (1) White-coated aperient (dinner pills)—podophyllin, aloin, rhubarb, and peppermint. (2) Brown-coated (Backache Pills)—oil of juniper and a resinous constituent (? benzoin).

Guy's Tonic: Phosphoric acid, tinct. cochineal, infusion of gentian and chloroform water.

Dalby's Carminative: Pulv. rhei, magnes. carb., glycerin, sugar, ol. menth. pip. and ol. anethi, and a small quantity of laudanum.

Chlorodyne: Chloroform, ether, hydrocyanic acid, morphine, cannabis indica, capsicum, peppermint, and treacle.

Clarke's Blood Mixture: The active constituent is iodide of potassium (about six grains to the ounce).

Oxien: Powdered sugar and starch and ol. gaultheriæ.

Ozerine: Bromide of potassium and iodide of ammonia, with chloroform water.

Pink Pills: Sulphate of iron, an alkaline carbonate, and licorice, thickly coated with sugar and colored with carmine.

Phosferine: Quinine, phosphates, and hypophosphites.

Siegert's Syrup: Aloes, capsicum, licorice, and treacle.

Steedman's Teething Powders: Calomel and starch.

Warner's Safe Cure: Nitrate of potassium (about ten grains to the ounce) and various diuretic herbs.

Woodward's Gripe Water: Liquor magnes. carb., ol. anethi, sugar, and a trace of alcohol.

Drink Cures.

Mrs. Terry's: Sugar (98 per cent) and salt (2 per cent).

Antidipso: Chlorate of potash and sugar.

THE ANTISEPTIC AND GERMICIDAL PROPERTIES OF GLYCERIN.

In Bulletin No. 16 of the Hygienic Laboratory at Washington ROSENAU reports his experiments along these lines. He tells us that this study was undertaken and is published on account of its importance from a public health standpoint, particularly in view of the fact that glycerin is used to conserve vaccine virus and analogous products. On account of its bland and non-poisonous properties glycerin has long been used as a preservative for organic matter; but not until 1891, when Copeman claimed for it special virtues as a germicide, did it come into general use to purify vaccine virus.

A false sense of security arose owing to an overestimate of the antiseptic and germicidal value of glycerin. This fact he has brought out in previous publications on the subject of the bacteriological impurities of vaccine virus. Other substances, such as chloroform vapor, chloretone, potassium cyanide, carbolic acid, formalin, etc., have since been used as substitutes for glycerin with more or less success, and it is possible that one of these more energetic germicidal substances may

be found to be superior to glycerin for this particular purpose in commercial practice.

The experiments are published in detail at the request of several vaccine producers, who desire to know the exact value of glycerin as a germicide and antiseptic.

In brief, it may be stated that glycerin has distinct but very feeble germicidal and antiseptic properties. The results are summarized as follows:

Glycerin as an Antiseptic.—Small quantities of glycerin, less than 10 per cent, added to nutrient media have well known powers of favoring the growth and multiplication of many forms of bacteria.

The presence of 50 per cent of glycerin will restrain all bacterial growth. Less than this amount cannot be depended upon for the preservation of vaccines and other organic growths.

The antiseptic power varies for the different glycerins. For instance, some restrain all growth and development when present in the proportion of 43 per cent; others require 49 per cent.

No evident growth or multiplication of bacteria takes place in nutrient media containing 32 per cent of glycerin, but molds grow in stronger percentages, viz., 40 to 49 per cent.

In order to prevent the growth and development of pus cocci at least 33 per cent of glycerin must be present. This is more than that required to restrain the growth and multiplication of the other eighteen different pathogenic and saprophytic bacteria tested.

Glycerin as a Germicide.—Glycerin has a distinct, though exceedingly feeble, germicidal action. It probably acts by virtue of its great affinity for water, abstracting this substance from the germ.

As a rule, glycerin destroys the micrococci of suppuration, whether these be in pure culture or in the pus itself, within two weeks. This action, like that of all germicides, depends for its activity upon the temperature. Pus cocci may live in glycerin for months in the ice chest. They would die in a week at the body temperature.

Glycerin seems to be a selective poison for the bacillus of diphtheria, which in all of the experiments died much more quickly than any of the other organisms tested.

The bacteria of the typhoid and colon group often show a marked resistance to the effects of glycerin in strong proportions.

Glycerin asserts its greatest germicidal effect during the first twenty-four hours. The remaining members of the colonies which resist its action for this period succumb very slowly.

Glycerin in all proportions has practically no effect upon endogenous spores. Anthrax spores have been kept alive and virulent two hundred days in the stronger percentages and at warm temperature.

Tetanus in Glycerin.—Tetanus spores in pure culture, freed of all organic matter and washed free of toxin, may lose their virulence in glycerin in thirty days at the body temperature, but they live for months (one hundred and eighty days) at room temperature or in the ice chest. Glycerin, therefore, cannot be depended upon to purify vaccine or other organic matter containing this contamination. The virulence of the spores is lost long before they actually die, for they still retain the power of growing and multiplying if placed under favorable conditions. Under these circumstances they also regain their original pathogenic properties.

Glycerin has practically no effect upon tetanus toxin. Rosenau found such toxin added to glycerin to be active for sixty days at the body temperature, and one hundred and eighty days at room temperature or in the ice chest.

THE TREATMENT OF SOME ACUTE VISCERAL INFLAMMATIONS.

In a valuable paper contributed by LEES to the *British Medical Journal* of November 28, 1903, he has something to say of the value of cardiac tonics in visceral inflammations. He believes that medicines which assist the heart to maintain the circulation are often of much service in the later days of a pneumonia. It is generally advisable to begin the use of these about the third or fourth day of the disease, and they ought to be given, if at all, somewhat freely.

Of these drugs, strychnine is probably the most useful. It should be given by subcutaneous injection. Half to one minim of the official (British) solution twice daily should be the initial dose for a child; for an adult two minims morning and

evening at first, increasing to five minims if necessary. Even larger or more frequent doses may be given with advantage in influenza with dilatation of the left ventricle.

Atropine by subcutaneous injection is also very serviceable in children, but not so useful for adults because they suffer other unpleasant effects of belladonna. In children large doses of this drug will cause chiefly flushing of the skin, which is of no importance. If the dose be further increased there may be dilatation of the pupil, some mental excitement and restlessness, and in some cases diarrhea. The subcutaneous injection of a very small dose of atropine twice daily, increased to every four hours, is often of the greatest possible service in the cardiac failure of diphtheritic paralysis. The author has used it for many years and is convinced that it has often saved life. But it must be given freely, and one must not be afraid of it. Strychnine may be given with advantage at the same time, but the author is sure the atropine is the more useful. In the paroxysmal dyspnea of mitral stenosis, with rapidly increasing breathlessness, pallor, and sometimes evidence of dilatation of the right auricle, a subcutaneous injection of atropine will often cut short the attack in a few minutes, and in children and adolescents will cause, as a rule, no unpleasant consequences. The same treatment is sometimes effectual in older patients, but in them the after-results of belladonna are much more troublesome.

In the pneumonia of children belladonna has been strongly recommended by Dr. Coutts, and Dr. Eustace Smith has reported an apparently hopeless case of pneumonia in a child in which recovery followed the free use of belladonna, the child being delirious for three days. The tendency of the drug to cause delirium is a great disadvantage in using it for pneumonia, which itself is very prone to cause delirium. On the whole, it is a remedy much more useful for children than for adults.

Oxygen by inhalation assists the aeration of blood in the lungs, and thus improves the quality of the blood supplied to the cardiac muscle. It is therefore truly a cardiac tonic. Its use should be begun as soon as cyanosis is definite, and should be continued for five minutes every hour, whether the patient is awake or asleep. It can be given without disturbing him in the least. Oxygen is certainly a most valuable remedy and ranks with strychnine in the treatment of pneumonia. But neither strychnine nor oxygen, nor both together, will often save life if the right auricle be not relieved. After a bleeding they are powerful remedies; without removal of blood they often fail, and almost necessarily. It is good to maintain the strength of the cardiac muscle; it is still better to diminish its labor. It is best to do both.

Digitalis will not always reduce the frequency of the pulse in pneumonia, especially when the temperature is high. It is most likely to be of service after relief of the right heart, when the fever is moderate and the pulse still remains weak and frequent.

Ammonium carbonate may be given when there is evidence of much secretion in the bronchial tubes.

Alcohol, though called a "stimulant," has not much title to be considered a cardiac tonic. It is essentially a vasomotor depressant, and as such may help the heart indirectly when the tension is high. There is also sometimes a temporary increase in the strength of the pulse after the administration of a moderate dose, probably due to increased blood-supply to the cardiac muscle, through relaxation of coronary arterioles. It is therefore possible that repeated small doses may be of service in pneumonia, but the large doses sometimes advised are likely to do more harm than good. To imagine that brandy can "support" the heart when the right side is becoming paralyzed from overdistention is absurd. In such a case the only satisfactory cardiac tonic is a venesection.

THE TREATMENT OF THE EARLY MANIFESTATIONS OF LARYNGEAL TUBERCULOSIS.

BRIGGS contributes to the *Journal of the American Medical Association* of December 19, 1903, the following views as to this question: Nourishment is of prime importance, and to this end forced feeding within physiological limits, with moderate open-air exercise and abundance of sunshine, is necessary. The greater part of the twenty-four hours should be spent out-of-doors. Regulated long hours of sleep in a cold, southern-exposed room with

open windows, barring direct draughts, are essential.

The effect of climate is disappointing as directly influencing the local lesion, but indirectly, acting on the general predisposition, is only second in importance to nourishment. The greatest number are benefited by a climate of moderate temperature and of medium hygroscopic conditions, in an elevation from 2000 to 3000 feet. Air free from dust and gases of the cities, purified by moderate winds and rainfall, and an abundance of sunshine, have proved beneficial to many having laryngeal complications in whom the process is either arrested or cured. The warm, moist climate of lower elevations is better suited to a few who are not enervated thereby.

The voice should be completely suspended in the acute form, or during an acute exacerbation of a chronic case. To facilitate this, which is difficult to accomplish, a pencil and pad should be used by the patient, and his necessary communications written thereon, and during the greater part of the day he should be left alone, thus eliminating the temptation of speaking. In the less severe cases modulation of the voice and in the amount of speaking should be insisted on. In no case should singing or reading aloud be permitted. Many patients have a faulty mode of speech specially fatiguing to the larynx. The effect is laryngeal rather than from the chest, and often an affected voice from habit must be contended with.

There is too much routine spraying and inhaling in vogue, throwing into the larynx variously combined oils and liquids, many of which are not only non-solvent but actually coagulating to the secretions, and instead of cleansing and soothing often form a tenacious, irritating mucous coat nauseating to the patient. The principles of treatment are not unlike those in other lines of surgery, cleanliness being the prime factor. If the parts are covered by a tenacious mucus or débris, a bland solvent, such as a solution of sodium bicarbonate, sodium chloride, sodium biborate, or sodium sulphate, should be gargled, sprayed, or applied on a cotton sponge thoroughly but quickly with the least possible irritation to the parts. The patient should not be requested to assist in dislodging retained secretion by repeated coughing or hawking, for the effort is too fatiguing for an organ needing rest, and induces hyperemia. After the cleansing process, the inflammatory conditions should receive such treatment as is indicated, and usually astringents, solutions of zinc chloride, tannate of glycerin, creosote and iodine, pyoktannin and silver nitrate on a cotton swab are most efficient.

Any pathological condition of the nose and pharynx should receive appropriate treatment; not only that the pulmonary patient may be able to supply his lungs plentifully with air, but that the larynx may be the recipient of air properly warmed, filtered, and moistened, every nasal and pharyngeal stenosis should be reduced, and to this end no moderate degree of cachexia will contraindicate the removal of septal spurs, or deflections, hypertrophied turbinates and adenoids, for the increased oxygenation will more than compensate for any debilitation resulting therefrom. Such measures are to an extent prophylactic to tubercular laryngitis.

There is much diversity of opinion as to the indications for local treatment of the preulcerative conditions. Theoretically, stimulants to the anemic and sedatives and astringents to the hyperemic areas are indicated, and the author's clinical experience conforms to this. Where there is a general anemic condition of the larynx and a beginning tumefaction, a stimulating spray of 20-per-cent menthol in liquid vaselin, or 50-per-cent guaiacol in olive oil, will tend to restore the capillary circulation. Propelling sprays with hot instead of cold air adds to their efficiency.

As the tumefaction advances an application of iodine, creosote, and potassium iodide in glycerin and water often has an absorptive action. The erosions and incipient ulcerations respond better to strong solutions of lactic acid than to any other application. Creosote 20 per cent in albolene, pyoktannin, and iodoform powder are also effective. It is needless to say that the mirror should guide the hand in all applications.

Intralaryngeal injections often serve well for both the general dyscrasia and local lesions.

Submucous injections have not in the author's experience proven satisfactory. The method of scarifying the tumefaction is it is believed contraindicated. In certain selected cases where the infiltration

is localized and accessible, especially in the so-called primary cases, thorough curettement followed by carbolic acid or lactic acid is permissible.

THE TREATMENT OF SOME DISEASES OF THE EYE BY WARM MEDICATED SPRAYS.

To the *Medical News* of December 26, 1903, MARSHALL contributes a paper with this title. For the past year he has made use of an old but seemingly little known method of treating certain diseases of the eye, namely, the use of warm medicated sprays applied by means of a steam atomizer.

The method is simply this: A steam atomizer, such as is commonly used in spraying the throat, is filled with water, the alcohol lamp is lighted, and a solution of the remedy indicated is put in the cup. The patient is seated in front of and close up to the atomizer, at such a level that his eye looks directly into the tube. When the spray is well started the lower eyelid is pulled down, and the patient is directed to hold his eye wide open. The spray is directed alternately into one eye and then into the other, the duration of the treatment being from five to ten minutes. After spraying, the eye may be touched with bluestone or alum stick, or applications of drops or ointment may be made, as is indicated. These agents seem to act more effectively when applied immediately after the warm spray.

Cases of blepharitis marginalis heal with surprising rapidity after a course of spraying and yellow oxide or other ointment. As this disease is often complicated with, if not really caused by, a conjunctivitis more or less chronic and often trachomatous, it gets well because the conjunctivitis is healed at the same time. In practice it is very difficult to get blepharitis patients to remove the crusts from their eyelids. Unless this is done ointments do not act effectively. The hot spray softens the crusts, and they may be removed while the spray is being applied. In this connection the blepharitis cases often do better with ointments other than the classic yellow oxide. The author has obtained good results with Lassar's paste, boric acid ointment, and even plain vaselin after yellow oxide in one-half- to one-per-cent strength had been used for weeks, to no purpose. It is idle to scold the parents of the average clinic child because they fail to remove the crusts from their child's eyes. It is better to make use of a treatment which will cure the child's eyes in spite of the ignorance or carelessness of its parents.

Chronic conjunctivitis responds most satisfactorily to treatment with the warm spray. The spray is soothing and pleasant, and patients enjoy taking it. Most cases of conjunctivitis do well under bluestone applied immediately after the spray. The author applies it lightly to the lower lid, and then lets the patient bathe the eyes in a basin of cold water until the acute pain is somewhat abated.

Of all cases in which he has used the spray treatment, the most satisfactory have been some chronic cases of conjunctivitis and pannus, combined with more or less corneal infiltration due to old trachoma. We see many such in the dispensaries in New York. They are found principally among the poorer classes of Russian Jews, many of whom are tailors and work in poorly lighted and poorly ventilated sweat-shops. The plight of these people is sometimes pitiful in the extreme. They are compelled through poverty to work when their eyes are totally unfit to use. Some of them give a history of having had trachoma, with occasional attacks of pannus, for periods varying from five to thirty years.

Where the corneal irritation is due to the rubbing of roughened cicatricial surfaces of the eyelids, little can be done. In cases where the conjunctiva of the eyelids is swollent and succulent, the spray treatment, followed by applications of bluestone, is very effective. The author has relieved a number of such cases which had been treated with bluestone or nitrate of silver for months with no improvement.

Corneal ulcers and infiltrates often clean up rapidly under the spray treatment.

A method of treating chancroids by means of a weak spray of peroxide of hydrogen, applied by means of air at a pressure of 60 pounds to the square inch, has recently been suggested. The author believes a warm spray of a suitable solution applied with considerable pressure would favorably influence a corneal ulcer, but he has never tried it.

The pressure of the warm spray as it issues from the tube of the atomizer is practically inappreciable, but it cleans out an ulcer effectively.

Marshall concludes that spraying with warm medicated sprays is indicated in almost all diseases of the conjunctiva, as acute catarrhal, chronic, epidemic, gonorrheal, trachomatous, and phlyctenular conjunctivitis; in diseases of the cornea, as ulcer; in infiltration and interstitial keratitis; and in iritis.

HAMMER-FINGER.

A somewhat remarkable occurrence of hammer-finger in seven members of one family is a sufficient example, remarks SCOTT (*Glasgow Medical Journal,* November, 1903), of the marked hereditary tendency of the deformity. It is probable that in many cases of this affection the hereditary history cannot be obtained simply because the condition has attracted so little attention.

Among some of the peculiar features of this series are: (1) the probability that the deformity was actively brought out by the intermarriage of cousins; (2) in all cases the youngest member of the family has a hammer-finger; (3) the constancy with which the first interphalangeal joint of the fifth digit is affected.

Recognition of the affection at an early stage might save the necessity of surgical interference, which for so trifling an affection is difficult and complicated.

In one of the cases described the treatment of the affection in its early stage consisted of the patient practicing forcible extension of the affected fingers rapidly and wearing a splint at night. The splint is made of light, strong metal covered with leather. Its shape fits the palm accurately, the divisions corresponding to the affected fingers. It is firmly fixed at the wrist by a strap. By bandaging the contracted fingers to the metal prolongations, they are spread as much as possible. Such treatment persevered in should at least arrest the development of the contraction.

Surgical treatment, which differs from similar treatment for hammer-toe, may consist of section of the lateral ligament, with a subsequent lengthening of the tendon. This treatment, however, neglects the deformity of the bone, and where there is much rotation forward of the articular surface the bones can only be brought into line at the expense of a partial dislocation. This bony deformity could be rectified by performing an osteotomy. This operation should be performed as near the articular surfaces of the head of the first phalanx as possible, there being no epiphysis at this end to complicate matters. The osteotomy and section of the ligament could be done at one operation. The finger could then be fully extended on a splint, the hand being flexed at the wrist to relax the flexor tendon. A second operation would probably be necessary to lengthen the tendon.

The operation is not to be undertaken lightly, because of the complicated nature of the deformity and the danger of producing ankylosis when working so near a joint.

KNEE-JOINT SUPPURATIONS OF AN ACUTE FORM—MODERN TREATMENT.

Where the knee-joint is distended, exhibiting intensely septic general symptoms of growing severity—even to the so-called typhoid status—and at the same time the local disability, tenderness to touch, the exquisite pain, and the edema of the integument all point to a destructive process, the presence or absence of pus should be immediately determined with the aspirating needle. Errors in diagnosing such cases as acute suppurations of the joint may be made, though such are rare in pyemic or in traumatic cases. Of errors that have come under GERSTER'S observation (*Medical News,* Sept. 19, 1903), that of acute articular rheumatism was the most frequent, then followed cerebrospinal meningitis, and finally typhoid fever.

A careful and systematic going over of the body of the patient, especially when he is more or less comatose, will soon establish the presence of the characteristic pale and deep-seated edema of the lower end of the femur or of the upper end of the tibia. Pressure over the epiphyseal line will not fail to elicit signs of distress, even in a deeply comatose patient, and the surgeon, if his diagnosis be made early, will at this stage find no abnormality about the joint.

The acute purulent inflammations of the knee-joint are divided by Gerster into three groups—*i.e.*, metastatic or pyemic suppurations, suppurations due to osteomyelitis, and traumatic suppurations.

If the local symptoms of the first group are troublesome they will demand surgical intervention: first, evacuation by puncture, and if the collection be ropy and thick, by irrigation. Rapid reaccumulation will demand incision and drainage, the number of incisions depending upon the acuteness of the local symptoms. In mild cases two lateral incisions, placed along the sides of the patella, and a median incision penetrating the quadriceps bursa, will be found sufficient. A rubber tube is placed in each one, and the dressed limb is fixed on a suitable splint, preferably in horizontal suspension. Daily change of dressings and irrigations follow. As soon as the secretions become serous the tubes ought to be withdrawn.

In small children one or at most two incisions will suffice. Here the use of carbolic solutions is strictly prohibited.

Of the most troublesome forms of metastatic infection, due to gonorrhea, only those will require active interference in which massive effusion and great tension threaten the integrity of the joint. While the course of the malady is very slow and rebellious, in the majority of cases the function is restored.

As suppuration of the knee-joint springs sometimes from osteomyelitis, in every case of this latter attacking the tibia or femur near the knee the joint should be watched. An effusion distending it should not be overlooked. The edema of the integument, however, should not be mistaken for an effusion. Flexion and rigidity of the joint, being regular companions of osteomyelitis, have also an inferior diagnostic significance.

Every osteomyelitic focus should be freely opened as soon as the diagnosis is made. A free external incision will expose the bone; the chisel and mallet will lay open the diseased medulla and cancellous tissue. Thus, in favorable cases, the extension of the infection to the articular cartilage may be averted. But where the joint has been attainted the focus should be followed up and traced to where it perforated the cartilage. To this should be added at once arthrotomy.

Mayo's incision is found advantageous. The joint having been widely opened along three-quarters of its circumference, direct access to all the ligaments becomes easy, especially if the crucial ligaments be also divided. Each of the sinuosities of the capsule can then be inspected and subjected to direct local treatment by packing. To do this thoroughly, the knee is flexed at an angle of 45 degrees, and after proper packing is dressed in that position. Even if only temporarily employed this treatment affords great advantage over irrigation.

Ordinarily the local and general septic symptoms rapidly subside, and within a week or ten days the flexed joint can be again extended, in which position it is permitted to heal. Where most or all of the articular cartilage was preserved, even a certain degree of the function of the joint may be regained. Extensive loss of the cartilages, however, must end in firm ankylosis.

Traumatic infection of the knee-joint even under the most favorable conditions of general health is a terrible enemy. The benefits to be derived from employing Mayo's incision in such cases depend almost wholly upon the condition of the patients.

HIP DISEASE—A STUDY OF GOOD RESULTS.

A good result in hip disease is, from the practitioner's point of view, arrest or termination of the disease, regardless, says GIBNEY (*Medical News,* Sept. 19, 1903), of the position in which the limb is left.

Ankylosis is rather courted, and if a stable, firm union is secured, it is believed that the patient will be free from any late exacerbations, and locomotion will not be seriously impaired. The claim is often made, too, that a cure with a flexion deformity enables one to sit more comfortably and to dress oneself with more ease than if the ankylosis existed without deformity. This depends upon the point of view. For one whose vocation is to be sedentary there is no question but that an angle of, say, 135 to 150 degrees fixation is better. Where, however, the vocation of the patient takes him out-of-doors, the position should be straight—that is, ankylosis, if it must exist, without either flexion or adduction deformity.

As the patient approaches puberty, how-

ever, he is sometimes dissatisfied with the existing deformity and seeks relief at the hands of the general surgeon. An osteotomy, either simple or cuneiform, is done, and the limb is placed in what is honestly believed to be a good position—that is, straight with the axis of the body. Disappointment comes on removing the appliance employed, for the deformity has not been fully corrected. But this is much the best result one could expect.

An orthopedic surgeon whom the lay press has placed at the pinnacle has claimed that ankylosis without deformity is the best we can expect. Plaster-of-Paris is used to allay irritation and encourage ankylosis.

Surgeons who claim that early excision yields good results are not able to furnish the proof. If the disease on section is found extensive, too much of the bony tissue must be sacrificed, and not infrequently a flail joint is the result. Early excision is not popular in this country because of the mortality and of unstable limbs.

Among orthopedic surgeons whose practice is not confined to splints, there is a growing tendency to remove by small aseptic operations the foci of disease demonstrated by the radiograph. Some find it advantageous to evacuate small collections of pus by means of the scalpel when the needle will not suffice. All of these operations, however, should be followed by protection apparatus. It has been abundantly proved that the best results are obtained by the early use of splints that immobilize the joint. Such appliances, to be efficient, must be long continued, irrespective of muscular atrophy. Among the best informed of orthopedic surgeons the results obtained over a quarter of a century ago by the late Charles Fayette Taylor have not been surpassed, and this pioneer claimed that muscular atrophy was a thing to be courted.

The good results acceptable to many surgeons are the minimum amount of shortening, without deformity, and with the maximum range of motion.

Results must be studied on a basis of the stage in which well recognized methods of treatment are begun. The keen diagnostician will recognize the lesion before the deformity arises and at an early stage, while the poor diagnostician will fail to recognize hip disease until the mother of the child has already made the diagnosis herself. Then the second stage, that of deformity, will have been reached and the advantages of early protection are lost.

The tardy recognition of the value of instruction in orthopedic surgery by the medical schools throughout the country is largely responsible for the destruction of hip-joints and the hopelessness of restoring function to joints thus impaired.

Where treatment is delayed until the bacilli have already played sad havoc with the head and neck of the femur, fair results may be obtained by close attention to details and by intelligent home coöperation. Here one must be posted on the damage to tissue an abscess can cause, and steps will naturally be taken to curb its virility. Occasionally a fine result can be secured, but this can hardly be expected.

In the third stage content must be had with correcting deformity and eradicating necrotic areas and sinuses. Results that will satisfy can be secured by maintaining the best position of the limb. There should be no hesitation to repeat efforts at correction, or resting satisfied until the maximum benefit has been secured as a lasting result.

STOMACH AND GUT OPERATIONS—MURPHY BUTTON.

From a critical review of all recent literature on the subject, NEUWEILER (quoted in *Medical News*, Sept. 19, 1903) has prepared a list of the more important conclusions concerning the employment of the Murphy button in stomach and gut operations.

Perforation resulting from the use of the button is particularly prone to occur after union of the small gut following resection for incarcerated hernia, in certain gastroenterostomies, and particularly after circular iliocolostomies. In many cases the blame for the perforation lies in faulty technique or in the use of worthless buttons. In hernia the cause of perforation lies more in the already existing infection than either in bad technique or faulty button, shown by the fact that union by suture yields no better result. This is, therefore, no just arraignment of the button principle.

Before using a button the following conditions should be fulfilled: (1) The margins of the ring which are designed to hold together the serous surfaces on the male side and all marginal holes must not be sharp but evenly rounded off; (2) the opening between the cylinder and ring of the female side must be wide enough to admit a thick gut wall; (3) the cylinder of the female part must be somewhat shorter than that of the male, or that a complete locking of the two parts may be possible; (4) the male cylinder, when the button is closely pressed together, should not overreach, lest with the fingers closely pressed over the openings its margin may seriously wound the mucous membrane of the gut; (5) the strength of the spring must be such that the pressure will be absolutely continuous so that necrosis will occur early; (6) the size of the button must be in proper relation to the size of the gut.

Touching on the technique of inserting the button, the purse-string suture should not be placed too far from the edges of the gut lest a cuff result too large to be accommodated by the button. Similarly this stitch shall not be placed too near the edge for fear of tearing out when the button is pressed together. Two or three millimeters from the edge seems the best average distance. In circular anastomoses care must always be taken that the stitch holds the mesentery close to the button, so that at this point only serous surfaces shall be brought together. Protruding mucous membrane should always be resected. The closure of the button should not be accomplished by a single push, but by several. The fingers should be so placed as not to wound the mucous membrane upon the margins of the lumen. In most cases a protecting reënforcing line of suture should be used.

TRIFACIAL NEURALGIA—SURGICAL TREATMENT.

In the operative treatment followed by BARONI (quoted in *Medical News,* Sept. 19, 1903), for trifacial neuralgia, a larger portion of the trigeminal nerve is removed than could be accomplished by simple resection, for not only is that part accessible which is uncovered by the incision, but an additional portion is drawn out by the movements of traction, and the section occurs near the ganglion. The beneficial effect of nerve stretching, furthermore, is attained by the same means through which the section is accomplished and simultaneously.

The nerve is exposed for as great a length as possible, and isolated. It is then seized with pincers at the angle of the wound in the soft parts corresponding to the center of the nerve, and gentle traction is exerted upon it. The nerve is seen gradually to be stretched and drawn outward. Again it is seized with the pincers near the angle of the wound, and more energetic traction causes it to be severed some distance from the point at which it is held by the forceps. This same maneuver is repeated at the opposite angle of the wound, toward the peripheral portion of the nerve.

ANASTOMOSIS—INTESTINAL · ANASTOMOSIS BY THE ELASTIC LIGATURE.

A combination of the usual methods of anastomosis is offered by MCGRAW (*American Gynecology,* September, 1903) in the belief that it affords the best chance for the patient with gangrenous intestine.

The gangrenous coil is drawn out of the abdomen far enough to permit the surgeon to unite the two ends of the bowel at a point where they seem healthy, by means of a rubber ligature. This requires very little time, and causes no shock. All of that part which is likely to slough is then fastened outside the abdomen, and the wound is closed around it. The immediate result is an artificial anus through which the intestine may relieve itself of its contents.

At the end of two or three days a new channel has been cut by the rubber ligature, and the false anus then becomes unnecessary. It may then in time close spontaneously, or be closed by the simple operation of inverting and suturing the ends. In this way may be escaped both the great danger of an immediate excision and an end-to-end anastomosis and the severe secondary operation for the cure of an active false anus.

The details of operation are simple enough. The two viscera are brought together, and the surgeon connects them with a single line of Lembert sutures a little longer than the desired opening. The rubber cord is then, by means of a large

needle, passed through the walls of first one and then the other bowel and tied firmly in a single knot. Before tying it, however, a silk thread is laid under the knot, and after the knot has been firmly tied with the rubber stretched to its utmost, the silk thread is made to fasten it in place. Both threads are then cut short, and the Lembert suture is now completed so as to form a ring enclosing the rubber. In passing the rubber through the gut it should be put upon the stretch in order to lessen the size, and should be drawn carefully and slowly through in order not to tear the gut. It is not necessary to say that the rubber should be first-class and fresh, for old rubber is likely to break.

Besides simplicity and quickness of application, this procedure possesses aseptic quality, for the rubber fills the openings through which it passes so completely that no extravasation is possible. Another advantage is the delay in opening the passage until the intestines have become well glued together. Not the least of the good points is the ability to make with this procedure a communication of any desired length. In the hands of the experienced surgeon it may be looked upon as the least dangerous of all methods for making an intestinal anastomosis.

NEEDLES EXTRACTED WITH A GIANT MAGNET.

The successful use of a giant magnet in two cases in each of which careful dissection had failed to locate or remove the fragment of a needle is indicative, report WETHERILL and POWELL (*American Journal of Surgery and Gynecology,* October, 1903), of a new use to which the instrument may be applied. The simplicity and safety of the operation commend a trial of the magnet if it is available.

The magnet employed by the reporters was made for removing pieces of steel from the eye. The core is four inches in diameter, of solid forged Norway iron, and weighs 108 pounds. The coil is ten inches in diameter. The rheostat is controlled by means of the operator's foot. The direct current of 220 volts is taken from the motor wires of an electric light company.

The instrument exerts an attraction of 160 pounds for each square inch of contact, so that care must be exercised in wearing watches near the magnet.

In one case where the instrument was applied to remove the remainder of a pin lying at a depth of about three-quarters of an inch below the surface of the sole of a left foot, while the current was gradually increasing the foot was moved slightly in different directions in front of the instrument to try to start one end of the pin. After forty-five minutes' exposure and with a current of 220 volts a slight bulging of the skin was noticed just behind and below the internal malleolus. A small incision was made through the skin at this point under cocaine anesthesia, and the magnet was again applied. At once the pin was drawn out through the incision and held by the magnet.

BRIGHT'S DISEASE—SURGICAL TREATMENT.

The success, more or less great, which has attended the newer treatment of what was formerly looked upon as a purely medicinal affection has caused GORDON (*Annals of Gynecology and Pediatry,* November, 1903) to invite attention to some important points in the treatment of the disease.

Bright's disease is primarily an acute inflammation of the kidney structure, not dependent upon any specific infecting germ, which if early recognized and properly treated will terminate by resolution. Repeated attacks may occur if the condition is neglected or not recognized. Each one of these assaults leaves products of the inflammatory process, and these may organize or even suppurate. The circulation is thus interfered with, and there is produced finally a chronic passive congestion incorrectly called "chronic inflammation." The chief result is an enlargement of the organs, causing pressure of the fibrous capsule. Complete decapsulation relieves this. The distended vessels are depleted by more or less bleeding, while the circulation resumes its normal condition and absorbs the exudate.

One kidney alone may be involved, and operation upon that one alone may cause the symptoms to disappear.

As to cases far advanced, the surgeon is justified in operating when the suffering is great simply for the pleasant relief to the patient.

CANCER—CANCROIN TREATMENT.

Cancer treated by injections of cancroin, concludes ADAMKIEWICZ (quoted in *Medical Record*, Oct. 3, 1903), enables the patient to live longer and in greater comfort, even when not "cured," than those who are given over to their fate without treatment.

The action of cancroin takes place in the reverse order in which the damage is done by the disease. This inroad upon the system is threefold, local-anatomical, local-functional, and general. The injection fulfils its special task if it hinders the injurious influence of the cancer products upon function and the general condition of the patient. The elimination of the dead cancer and its replacement by formative tissue is exclusively a question for the reparative powers of the organism. It is consequently not reasonable always to demand such "cure."

One of the cases treated was a fungoid cancer in a male of fifty-two, about the size of a dollar, on the right side of the soft palate. Injections first of all relieved the pains. The growth then became metamorphosed into white fat, the lower jaw next became movable, and toward the end of the second week the patient showed how he could introduce a finger between the teeth and eat solid food. About four weeks after beginning the injections nothing was left of the tumor but a clean, granulating ulcer, which healed completely in about three more weeks. In a case of cancer of the tongue that organ regained somewhat its motility, the infiltration present decreased markedly, and a tumor behind the ear softened so much as to permit of the evacuation of its contents by successive punctures. Stomach induration, in another case, cancer of stomach and liver, vanished, except one walnut-sized hard spot on the greater curvature. The liver decreased considerably in volume and retained an uneven surface. Appetite was regained, and the patient renewed his weight. The day after the first injection in the case of a woman of fifty-two, who waited for death because of apparently incurable cancer of the intestines, the tumor became smaller and the pain less. After a few days she dressed, ate, and aided by simple remedies, defecated. At the end of the second week the stools came naturally and had a normal appearance. In a few weeks more she was able to go out-of-doors and to perform ordinary household work.

The author has repeatedly observed the vanishing of cancerous infiltrations and tuberosities of the liver, and the consequent reduction in a short time of the increased volume acquired through the disease.

THE VALUE OF PERISTALSIS AS SHOWN BY AUSCULTATION IN THE DIAGNOSIS OF INTRA-ABDOMINAL AFFECTIONS.

As the result of a clinical and experimental research on this question, GAUB (*Pennsylvania Medical Journal*, September, 1903) notes that the absence of a peristaltic sound after trauma is not of sufficient value to determine a celiotomy, but that if all means have been instituted to combat shock, and the pulse-rate is rapid and of normal volume, and the peristaltic movements are absent, at the end of four hours exploratory celiotomy is justifiable.

The author concludes with the statement that any injury to the abdomen sufficient to abolish peristalsis is a grave one.

FLATFOOT—TREATMENT.

Acquired flatfoot, it is noted by MACFARLANE (*Pennsylvania Medical Journal*, September, 1903) is essentially and distinctly due to faulty shoes, and is the accompaniment of certain occupations incidental to modern civilization. Exceptions to this rule are made, however, in the case of injury and of anterior poliomyelitis.

He notes as symptoms, pain and deformity, venous congestion with perspiration, a shambling gait, eversion of the foot, and often the condition of knock-knee.

The diagnosis in cases attended with little deformity but severe pain may be difficult.

A very excellent means of recording the flattening lies in painting the sole of the foot with tincture of chloride of iron, and then directing the patient to stand upon a surface covered with white paper. If the print thus formed be dusted with tannic acid, a permanent picture is obtained for future reference.

The prognosis, unless in paralytic cases of cerebrospinal origin, is most satisfactory. At the outset a well constructed shoe elevated but the fraction of an inch on the inside, with a broad heel and a good counter, will enable the patient to be about with comfort. If this be supplemented by frequent bathing, massage, and simple exercises, a cure will result.

So-called weak knees of children are really a condition of valgus or flatfoot, often due to the children being taught to walk before they can creep. Thus it is not uncommon to see huge, fat children hanging on to a chair with both ankles turned in, and their shoes worn on the inside alone. The ankle-supporters made of stiff, pressed leather, and the use of a last shoe instead of the ordinary buttoned ones, together with routine treatment, will relieve most of these cases. In paralytic cases braces extending beyond the knee will usually be necessary.

When the foot can be carried into the normal position, but falls back when the returning force is removed, tenotomies followed by retention apparatus to hold the foot in an overcorrected position will be required. All exercises tending to place the foot in the condition of varus rather than that of valgus, if practiced in moderation, are desirable.

Raising the weight of the body on the toes, then turning the heels out and allowing the foot to fall to the floor in that position, is an excellent form of gymnastic exercise.

SWALLOWING—DIFFICULTIES IN SWALLOWING.

For the purpose chiefly of casting more light upon its diagnosis and treatment, BUTLIN (*Clinical Journal*, Oct. 21, 1903) outlines his experience in chronic dysphagia.

Chronic dysphagia, up to the age of eighteen or twenty, is very rare, and if it is met with at all it is generally due to some very unusual cause. A rare case in this class was that of a boy, aged eleven to twelve, who had never been able to swallow solid food. No results came from the ordinary examination, hence the esophageal bougie was passed under an anesthetic. About the middle of the esophagus it seemed to encounter some very slight hindrance, which was overcome by a slight pressure. Before the patient had thoroughly recovered from the anesthetic he swallowed a lump of bread without difficulty. As soon as he regained his senses, however, he could not be persuaded to swallow anything, though he was probably well able to swallow. In a second case, that of a girl of fifteen years of age, similar to the first, passage of the bougie broke down, it is believed, a congenital web. The child was then able to take solid food and gained flesh with great rapidity.

If chronic difficulty in swallowing should arise in patients of from twenty to forty years of age, malignant and tubercular disease, particularly about the arytenoid region and interarytenoid fold, aryepiglottic region and cricoid plate, may be suspected.

After the age of forty difficulty in swallowing, chronic dysphagia, becomes very much more frequent. The most common cause of it is malignant disease of the esophagus.

Men are more liable to a chronic difficulty in swallowing than women are. In men the cause of the difficulty is most frequently malignant disease. While it may be the same in women, it may be due in young women especially to nervous difficulty.

As to the ability of these patients to take various kinds of food in cases of disease about the cricoid plate, fluids are likely to produce spasm, with all that choking and distress which occurs when food passes the wrong way, so that soft solid food, such as jelly and blanc-mange, is often swallowed better than liquids or fluids.

As a patient may be mistaken not only as to the level of organic disease, but even as to the side on which it lies, it may be well for the practitioner to look for the seat of the stricture at a point lower than is pointed out, except in connection with disease at the back of the larynx, in which case patients are generally right as to the seat of the stricture. Patients with malignant disease at the cardiac orifice of the stomach often believe the seat of the stricture to be much higher up.

The patient may have dysphagia without odynphagia, and he may have pain without much difficulty in swallowing. Non-malignant strictures of the esophagus do not as a rule give rise to pain in swal-

lowing. Even malignant strictures of the esophagus, unless very high placed, may exist for months or more than a year, and yet never at any time cause the slightest pain in swallowing. On the other hand, a spasmodic stricture sometimes causes very great pain. The experience of pain of cramp in the leg suggests what the pain of spasm of the muscular coat of the esophagus may be; which probably accounts for the extreme pain from which some of these patients suffer.

Difficulty in swallowing may often be due to external trouble. There may be enlarged glands or a tumor of the thyroid gland, particularly malignant disease of the gland, which presses upon the esophagus and causes difficulty in swallowing. There may be an aneurism of the aorta, and for a long time it may be very doubtful what the difficulty in swallowing depends upon.

Before the passage of an esophageal bougie it is of the greatest importance in a case of chronic difficulty in swallowing to examine every part both from the inside and the outside. The outside of the throat and neck should be examined first, also the chest, to be sure that there is no palpable tumor or undue fulness of the veins. The posterior triangle of each side is given particular examination. Here the presence of small shotty glands may indicate malignant disease very much lower down. The interior of the mouth is examined, every part of it, from the opening of the mouth down to the larynx. The interior of the larynx is examined with the laryngoscope; disease is looked for on either side of the throat above the larynx; whether there is swelling or ulceration of the epiglottis or posterior part of the larynx. The greatest care is taken to be sure that the vocal cords move readily. Paralysis of one vocal cord means either malignant disease of the esophagus or an aneurism of the aorta. Paralysis or paresis of both vocal cords may mean disease of the central nervous system. Questions are asked concerning the presence or absence of a spasmodic cough, difficulty in breathing or vertigo, and expectoration and its character. The voice of the patient is examined as to its character and quality. Indications of disease of the nervous system are looked for, particularly of bulbar disease.

The surgeon should be cautious about passing a bougie in a supposed stricture of the esophagus. The stricture may be due to the presence of an aneurism of the aorta, and if the aneurism is making its way into and threatening to open into the esophagus, the thin wall will be ruptured and the patient die.

If there is doubt whether an esophageal obstruction is due to the presence of organic disease, the patient should be persuaded to allow the bougie to be passed under an anesthetic. In some cases, however, a large bougie can be passed into the stomach under an anesthetic, notwithstanding that there is present dysphagia and even malignant disease of the esophagus.

There are patients who do not present the usual symptoms of malignant disease of the esophagus, and in whom a bougie can be passed with ease into the stomach, who nevertheless die from malignant disease. There are other patients who present the most marked symptoms of cancer of the esophagus and are condemned to die by the specialist they have consulted, but who, nevertheless, mend and completely recover.

In some doubtful cases the esophagoscope may be of some help, but in every case of chronic dysphagia in which the practitioner can neither see nor feel the disease there should be great caution before coming to any conclusion concerning the cause and future of the case.

ACNE VULGARIS—ROENTGEN-RAY TREATMENT.

TOROK and SHEIN (*Wiener klinische Rundschau,* Sept. 13, 1903) have employed Roentgen rays in the treatment of acne vulgaris which resisted all other forms of treatment. The *x*-rays acted very favorably in every case, caused absorption of recent papules, and crusting over and disappearance of pustules. The best results were obtained after fairly strong cutaneous reaction took place, as indicated by marked hyperemia and desquamation. The first effect of treatment was to aggravate the condition. An improvement was observed only after the reaction subsided. Several applications of the rays were necessary to produce a

cure. The acne lesions showed a tendency to increase in the cutaneous areas surrounding the region treated unless they were protected from the rays. The areas treated have remained free from recurrence for months, although new groups of lesions have appeared in the untreated areas.

IDIOPATHIC DILATATION OF THE COLON.

While chronic dilatation of the colon is a condition not uncommonly met with in adult life, MURRAY (*Annals of Surgery*, November, 1903) quotes a case of a somewhat unusual character, in that instead of being due to some definite mechanical obstruction, such as stricture of the gut or fecal infection, dilatation of the colon in the young child was due to the rectum being considerably distended and to the anus being unusually patulous.

The boy had suffered from constipation and abdominal distention since birth, four years ago, and constantly required aperients or enemata. Various lines of treatment were followed at various times because of varied diagnosis. He was operated upon twice. The second time the abdomen was opened below the umbilicus and the operator came in contact with an enormously distended something which filled the greater part of the abdominal cavity. On further enlargement of the incision this large something was delivered, apparently containing air, and was found later to be a dilated colon. When it was emptied of its gas and fluid feces, it was easily and clearly seen that the whole of the large bowel was distended from the cæcum to the anus, but that the part chiefly involved was the sigmoid flexure and the descending colon. The bowel measured here six inches in diameter when distended and four inches when emptied. The emptied bowel was easily returned into the abdomen, which was now flat. Because of the child's condition further operation was postponed. After considering various procedures it was deemed best to completely incise that portion of the bowel corresponding to the sigmoid flexure and descending colon, and to attach the transverse colon to the upper part of the rectum, end to end, by means of simple suture.

The child made an exceptionally good recovery. He is greatly improved in health since the operation, and does not suffer from constipation or from any abdominal distention.

In diagnosing these cases proper attention should be paid to the previous history of the patient, and to certain clinical symptoms characteristic of the affection. In this case there were repeated and serious attacks of constipation and distention, lasting on and off for five weeks. There was suffered occasional attacks of diarrhea. Since the child was eighteen months of age the abdomen was always distended; on one occasion there was no action of the bowels for thirteen days.

On first observation the case was thought to be tuberculous peritonitis.

AMPUTATING—TECHNIQUE IN THE PRESENCE OF SUPPURATION, GANGRENE, OR MORTIFICATION.

The formation of special flaps may be ignored and other advantages be gained, according to MANLEY (*Cincinnati Lancet-Clinic*, Oct. 31, 1903), if a few cardinal principles are observed in the performance of amputations for injuries.

In most cases it is of the greatest importance to guard well against the loss of blood. In the presence, however, of inflammation moderate vascular depletion is of signal value. In fresh cases, as far as circumstances will permit, rigorous asepsis should be observed, the dressings and the instruments being sterilized, but the pouring of boiling water on the nude tissues is a most prolific cause of sensitive stumps and osteomyelitis with necrosis.

In sloughing, infected suppurating, or gangrenous cases, antiseptic solutions for irrigating and saturating the dressings are of great value, but they must not be of too concentrated strength, especially if the bichloride of mercury is employed, as this is so likely to provoke an insidious but destructive form of inflammation in the bone elements of the stump. Anything beyond one to ten thousand is too strong.

Manley places reliance on the oldest antiseptic solution, carbolic acid, because it acts as a deodorizer and a sedative to the wound.

As to drainage, a free vent for the secretions must be provided in all cases.

Enough bone must be removed to provide a proper covering. Periosteal flaps are found to be of little or no advantage. It is generally advised to draw the large nerve trunks well down and to divide them high up. The ends are then carefully covered in by suturing the sheaths over them.

Everything considered, the muscular flap is found to be the most satisfactory. In amputations in continuity the circular flap is the most useful and forms the best stump.

In primo-secondary amputations any specially shaped flap may be ignored, the only object being to comfortably clothe the end of the bone with integument, or cicatrix and integument together. It may be discovered in this class of cases, after a varying period of time, when the temporary dressing is removed, that the integument down to the point of avulsion or severance has preserved its vitality, and it only remains to dissect so much of the projecting bone shaft as may be needed to secure an ample covering for the end.

Flood, a railroad surgeon of ability and large experience, has called attention to the frequent efficacy of scar-stumps after destructive necrosis of the limb.

In cases of dry mortification the stump may be formed in a singular manner. The mangled limb, after the bleeding is arrested, thoroughly cleansed, and properly dressed, is set aside in a comfortable position. Should the circulation be entirely destroyed decomposition will immediately begin; the cuticle becomes black, dry, and shrunken up to the line of demarcation. Here, again, nature shapes the flap, and there need be resected only sufficient of the shaft to permit the soft parts to comfortably cover in the divided end.

In secondary amputations, after purulent infiltration, there is seldom any lack of integument, but it may be highly inflamed, thickened, and edematous. While in some cases it may be advisable to amputate through healthy integument, in a vigorous subject, under proper care, where erysipelas is absent, an amputation directly through the inflamed parts is usually followed by an immediate abatement of the most urgent symptoms. The repair will be hastened by a good environment, free drainage, and antiseptic dressings.

As to secondary amputation during the progress of gangrene, when it is doubtful where an amputation should be made, a guide may be found in the temperature of the parts. The blade should be carried through those tissues that are yet warm and yet the seat of free oxygenation, the parts yet vital and hence capable of regenerative activity. Not infrequently this will be followed by immediate cessation of virulent inflammation, and repair rapid and complete.

Amputation in continuity and not contigentiquity may very frequently be resorted to with signal advantage in various types of spreading traumatic gangrene. An articulation is spared, and a stump, no matter how short, with a whole joint, is always of inestimable value to the patient.

It is often advisable in gangrene following crushes, punctures, or lacerations of the hand or foot, to amputate. Limb and life so often are threatened by a mixed infection, suppuration, and gangrene. Such cases occur more commonly in the spring season and frequently assume an erysipelatous character.

The local condition of the parts in this class is often not of so much consequence in guiding time and action as is the general condition of the patient. In the old, or those broken in health, or the subjects of constitutional disease, or those whose systems are supersaturated with the toxemia of infection, who are suffering from traumatic gangrene, amputation is of no avail.

TRAUMATIC ANEURISM OF THE SUBCLAVIAN ARTERY PRODUCED BY FRACTURE OF THE CLAVICLE.

TAYLOR (*Annals of Surgery*, November, 1903) reports the case of a man aged sixty-two years who sustained a fracture of the left clavicle. The patient continued to work, wheeling gravel in a wheelbarrow, nearly forty-eight hours before presenting himself for treatment. Some swelling was noticed at this time, but it was thought to be inflammatory in nature. Two weeks later pulsation could be seen and felt in the swelling, which

occupied the lower part of the left posterior triangle of the neck, and extended forward under the sternomastoid muscle, and downward below the clavicle overlying the broken fragments. There was a loud bruit present. The skiagraph showed distinctly a spicule of bone projecting downward at right angles from the end of the inner fragment.

Medical treatment was tried for a fortnight, but the aneurism increased in size, and was on the point of rupture when operation was undertaken. An attempt to expose the subclavian artery on the proximal side of the aneurism was unsuccessful. The inner two-thirds of the clavicle was resected; the tumor was then freely incised and the clots turned out. A small opening was found in the upper anterior aspect of the subclavian artery. The opening was closed by means of hemostatic forceps and the operation completed. The forceps were removed on the twelfth day, after which the wound rapidly granulated. Except for slight paresis of the left upper extremity the patient made an uneventful recovery.

The author has collected from the French and English literature all of the cases in which complications of fracture of the clavicle have been reported. He was able to find ten cases of injury (immediate or remote) to the neighboring nerves. There have been four authentic cases of wounds of the subclavian artery in addition to the one reported by the author. The subclavian vein has been injured in four instances and the internal jugular vein in two. In one case there was an aneurism of the acromion branch of the acromiothoracic axis, and in five cases there was wound of the lung associated with emphysema.

REPEATED CAESARIAN SECTIONS.

GREEN (*Boston Medical and Surgical Journal,* Oct. 8, 1903) seeks to prove that it is not justifiable in performing Cæsarian section to remove normal organs or to resort to other procedures with a view to preventing subsequent pregnancy.

He reports nine repeated sections. In one case there were no adhesions; in seven cases there were more or less adhesions. The duration of the operation was from thirty-nine minutes and twenty seconds to one hour and twenty-four minutes. In the one case that died of shock, the duration was forty-eight minutes. In one the uteroabdominal adhesions were so extensive that the fetus was delivered without opening the peritoneal cavity, and the time of operation was thirty-eight minutes. The nine infants were discharged well, and of the nine mothers, one died, a maternal mortality of 11 per cent.

RECURRENT DISLOCATION OF THE ULNAR NERVE.

COBB (*Annals of Surgery,* November, 1903) states that recurrent dislocation of the ulnar nerve at the elbow may occur (1) from non-traumatic causes (the so-called habitual, congenital, or idiopathic cases); (2) from trauma.

The cases of habitual dislocation are much the more numerous, but rarely require operation, and as a rule yield to simple palliative treatment. Abnormal mobility of the ulnar nerve is not uncommon, and may be present to the extent of complete luxation around to the front of the internal condyle without causing any symptoms. Colinet found that in five hundred persons the nerve slipped completely forward on flexion of the forearm in thirteen, and in five of these the dislocation involved both nerves. Drouard found complete luxation in three out of two hundred patients. The author found one case in a series of one hundred and fifty large, well developed men. Darting pain along the course of the nerve is caused by the trauma of the oft-recurring jumps over the condyle, and in a comparatively short period of time pathological changes take place in the nerve and its sheath. In most of the cases operated upon the nerve is found to be distinctly enlarged, and fusiform in shape. The one reported case in which examination of the nerve structure was made showed a typical neurofibroma, with marked thickening of the nerve sheath.

The author reports a case of traumatic dislocation which he operated upon. It was found at operation that the bony groove, previously and normally occupied by the nerve, had become completely filled up by fibers of the triceps muscle. These were dissected up from their abnormal insertion, and after the nerve had

been placed in its groove these fibers and a portion of the fascia of the triceps were carefully sutured to the fascia covering the flexor carpi radialis, thus making a roof over the nerve and its canal. The arm was kept on a splint for three weeks. At no time after operation was there any pain. The patient was allowed to use his arm at the end of four weeks. Two years has elapsed since operation, and the patient is able to use his arm in all ways and regards himself as absolutely cured.

The author concludes that operation for this condition has every chance of perfecting a cure, basing this on a statistical study of fifteen cases. Operation should be undertaken only in those cases in which the symptoms are severe and disabling. The steps of the operation are simple and will necessarily be the same in the majority of cases.

FRACTURE OF THE MANDIBLE—METHOD OF WIRING.

The various methods recommended and used for the treatment of fracture of the mandible appearing in many instances to be failures or only partly successful, McCURDY (*Annals of Surgery,* November, 1903) has devised a way which he believes reasonably guarantees an adjustment of the fragments. He has used this method in many cases with uniform success.

A hole is driven through the mandible from the external surface of the bone into the sublingual cavity. The drill hole should be made between the apices of the second and third teeth from the lines of fracture when this is possible, that a firm anchorage for the wires may be obtained. The drill holes when made are threaded with a notched drill. The wire is now passed through from without into the mouth on one side; it is then drawn out with the thread through the drill hole on the other side. The loop on the inside of the bone is now molded to the surface of the mucous membrane. The free ends are twisted to bring the ends of the bones in perfect apposition. The wire is now turned up along the remaining teeth so that the ends may not irritate the mucous membrane of the lip.

When one side has a tendency to drop, the drill hole should not be on the same plane. The hole in a high fragment should be well up to the gingival margin, and the one in the lower fragment close to or below the dental canal. Sometimes, usually in fractures near the angle, only one hole is required, teeth being used for anchorage. The wires are permitted to remain in position for about six weeks, longer if union has not taken place. Bandages and swaddling cloths are not necessary; the patient soon learns to hold the teeth together.

If infection comes on an ice-cap should be applied directly to the face. Under this treatment suppuration occurs but seldom. The mouth should be cleansed every hour or so with some strong antiseptic.

Before the adjustment of the fragments the field should be thoroughly cleansed with 50-per-cent solution of alcohol.

Iron wire is found superior to silver wire, being tougher and less irritating.

The method of feeding has been to pass a curved glass tube behind the back teeth into the mouth. A fountain or other syringe can be used to carry liquids into the oral cavity. Patients in many cases can suck the liquid from a glass with ease provided the tube is made with sufficient curve to permit closure of the lips.

HASTENING OF EPIDERMIZATION.

In his paper published in the *Carolina Medical Journal* for October, 1903, McGUIRE has for his subject the discussion of methods which hasten healing of cutaneous surfaces where the process is slow or at a standstill. Only the results of practical experience are presented.

The first step in epidermization should be to stop suppuration, and the second should be to stimulate normal regeneration and to protect the embryonal cells resulting. In case these two steps are insufficient a third should be undertaken to augment nature's reparative forces by grafting the bare area with epithelial tissue of sufficient vitality. These three indications for treatment, which must be followed in the management of every granulated wound, whether it be a small ulcer or an extensive burn, are discussed by McGuire collectively under the different dressings commonly employed.

The first treatment usually tried is a

moist dressing. The method of application consists in saturating a bit of absorbent cotton with the fluid selected and applying it to the raw surface, preventing rapid evaporation with a layer of oiled silk. The cotton should be wet as often as it becomes dry, and should be changed as often as it becomes soiled. The solution should not be a strong antiseptic, as that would kill cells as well as germs, but it should have an inhibitory action on microbic life. The three solutions most satisfactory are chloral hydrate solution (chloral hydrate 1 drachm, water 2 ounces); Thiersch's solution (salicylic acid ½ drachm, boric acid 3 drachms, water 2 ounces); and acetate of aluminum solution (alum 6 drachms, acetate lead 9½ drachms, water 2 ounces). All three may be used either hot or cold, and should be employed in conjunction with rest and elevation.

Treating granulated surfaces with dry antiseptic powders in most instances does harm. When first applied decided improvement is seen, but continued use is followed by irritation, due to absorption of serum and the formation of crystalline concretions that act as foreign bodies, or to broad incrustations that prevent the escape of pus or other wound secretions.

Concerning oleaginous dressings McGuire believes that vaselin, lanolin, and castor oil, plain or medicated, will give better results in some cases than any other applications. In extensive burns successful results have been obtained in the early stages by the use of a 5-per-cent mixture of ichthyol and vaselin, and in sluggish granulations, especially of tuberculous character, similar results have come from an application of a combination of 1-per-cent carbolic acid, 5-per-cent Peru, and 94-per-cent castor oil. Considerable benefit will sometimes be derived, especially in the treatment of a granulating wound, from a dressing that supplies food directly to the germinal cells and their offspring. Meat juice that is sterile, containing no alcohol, and rich in foodstuff, is an excellent nutritive dressing. It should be diluted with three-fourths water, warmed to the temperature of the body, and applied on cotton in the form of a moist dressing. As soon as pale granulations become pink and healthy this nutritive dressing has fulfilled its function and should give place to some other dressing. Among the newer preparations to be used as alterative dressings, protonuclein may prove effective in the treatment of indolent or foul granulating areas that have defied other lines of treatment.

Protection of the wound is best accomplished by interposing some impervious material between the granulation and the meshes of the overlying gauze. The best results follow the use of strips of rubber dam, collodion film, or Cargile membrane, placed latticewise. The rubber dam, of course, can be sterilized by boiling. Collodion film may be prepared by pouring collodion on an antiseptic glass; when it has hardened, it may be cut into strips. Cargile membrane is made from the peritoneum of the ox, and can be bought in germ-proof envelopes.

In skin-grafting, if the surface of the wound be fresh, care must be taken to perfectly arrest hemorrhage before applying grafts. If the surface be not fresh suppuration must be stopped before applying grafts. Three methods are recognized in skin-grafting. In Reverdini's, small particles are cut from the superficial layers of the skin with scissors, and planted at intervals on the surface to be covered. In Thiersch's, broad strips are cut from the superficial layers of the skin and placed so as to completely cover the wound area. In Wolfe's, a piece of skin is dissected the entire thickness of the structure and then fitted to the wound. The dressing for any of these methods consists of lattice-work or protective strips; over this is placed a bit of gauze wet with normal salt solution. At the end of the third day this should be removed and replaced. Subsequently the case should be managed on general surgical principles. Skin-grafting is so simple and the results are so immediate and satisfactory that the surgeon who does not avail himself of it in suitable cases does an injustice both to himself and to his patients.

Primary skin-grafting is done after the removal of the epithelioma or other superficial growth, provided, however, that infection be prevented, hemorrhage arrested, and ligatures and sutures avoided. The depression following the removal of tissue fills up beneath the skin, making the depression less than expected.

Secondary skin-grafting is done when ligatures are used to arrest bleeding or when sutures are used to secure coaptation, where infection exists or may be expected, or where the excavation is deep and a large amount of granulated tissue is necessary. In operating for cancer of the breast where approximation of the margins of the wound is secondary to extirpation of the diseased tissue, the malignant growth should be removed as completely as possible. The cut edges of the skin are then to be brought together as nearly as practicable. A protective dressing is now to be applied. In a week or ten days stitches should be removed and the granulating area skin-grafted.

Reverdini's method is employed where the area to be covered is small and where the administration of a general anesthetic is contraindicated. Both the surfaces to be grafted and the site from which the grafts are to come should be prepared. By means of a sharp tenaculum the skin is elevated into a cone, and then a small piece of it is snipped from its superficial layer with a pair of curved scissors. The fragment, transferred at once to the graft-area, should be seated on the granulations. Care is to be taken to prevent the edges curling inward; the curling would prevent apposition of raw surfaces. The grafting is repeated until a sufficient number of grafts have been planted to stud the bare area thickly. Spraying with chloride of ethyl makes the cutting of the skin painless. The space between the grafts is rapidly covered. The resulting scar is good. Reverdini's method is very satisfactory in weak, nervous persons.

Thiersch's method should be used when the surface to be covered is large and when the patient is under an anesthetic. The grafts are obtained by making the skin tense or flat either by hand or special hooks, and then by cutting off the superficial layers by a to-and-fro motion of a sharp razor. The larger the size of the grafts the better. They are usually an inch wide and four or five inches long. Care should be taken to remove only the upper layer of the skin, otherwise the wound inflicted may prove as difficult to cure as the wound the surgeon is trying to remedy. As cut, the grafts are dropped into a warm saline solution. After this they are placed carefully on the area to be grafted, the edge of one graft overlapping that of its neighbor. This method of skin-grafting gives the most brilliant results.

In exceptional cases Wolfe's method may be employed. The surface of the area to be grafted is thoroughly cleansed, and the margins are made fresh and vertical. All bleeding is to be completely arrested. The entire thickness of the skin is to be removed, but with no subcutaneous fat. To permit of closure of the dissected portion by sutures, the outline of the incision should preferably be an ellipse. To allow for shrinkage the skin removed should be one-third larger than the defect to be covered. The graft may be retained in its new position by sutures or by overlying dressings. In one case there was planted a single piece of skin having an area of some sixteen square inches. This graft was obtained in the retrenching of the scrotum of a man for varicocele, and was planted on a woman who had been operated on some days previous for cancer.

The only reasonable sources from which to obtain vital epithelial tissues are the skin of the patient (autografts), the skin of another person (heterografts), and the skin of a lower animal (zoögrafts).

Autografts are usually cut from the patient's thigh or shoulder. As they are most likely to prove successful they should always be employed except where the patient's general condition is bad, or where the area to be grafted is very extensive.

Heterografts may be obtained from amputated extremities or from fresh cadavers. They grow well when secured from a satisfactory source. They carry the danger, however, of infecting the patient with syphilis, tuberculosis, and other diseases.

In McGuire's experience (one case) skin from a white man's leg planted on a negro's leg was as white two years afterwards as on the day planted. This does not, of course, settle the question as to whether or not pigment is lost when black skin is transferred to white, but McGuire, because of this one case, has been deterred from making the reverse experiment.

Zoögrafts may be obtained from the frog, chicken, pig, cat, dog, rabbit, or guinea-pig. As they do not grow as rapidly as grafts from human skin, they

should not be employed except when no other grafts can be obtained. Experience seems to prove that where large areas require covering the necessary grafts may be obtained from the ordinary pig. The pigskin, of course, must be carefully prepared. The preparation consists of shaving and frequent scrubbing in antiseptic washes. A sow pig is preferable, as such pigs are said to be easier to keep clean.

PROLAPSE OF THE URETER THROUGH THE BLADDER AND URETHRA.

HIBLER (quoted in *Centralblatt für Gynäkologie,* Oct. 17, 1903) reports the case of an apparently healthy girl six weeks old who suddenly developed a pedunculated tumor the size of a hen's egg, pear-shaped, and cystic in character, at the external urinary meatus. The cyst ruptured several hours after its appearance. After excision of the cyst walls the child developed uremic symptoms and died. The cyst consisted of a prolapsed left ureter, which was atrophied and impermeable at its vesical end. The left kidney was provided with a second ureter which opened into the bladder. The right ureter presented evidence of dilatation.

ENTERECTOMY.

CAIRD (*Medical Press and Circular,* Nov. 11, 1903) reports eleven cases which were operated upon for tubercular stricture of the intestine. The stricture may be caused by: (1) a papillary outgrowth in the lumen of the gut; (2) an annular fibrous diaphragm occluding the bowel; (3) a bobbin-like obstruction due to thickening of the wall of the intestine.

The majority of cases were observed before the thirtieth year, though in several instances the sufferers were in advanced life. The ileocæcal region was most commonly affected, and in making a diagnosis, chronic inflammatory conditions arising in connection with the appendix, and malignant disease, were the most important of the other possibilities to be considered.

The history of these cases was usually one of chronic ill health, extending over a number of years, with constipation, colicky pain, abdominal tenderness, borborygmus, and vomiting as the most prominent symptoms. Hematemesis, diarrhea, melena, and hemorrhoids were met with less frequently. On examining the abdomen, peristaltic movements, giving rise to ladder patterns, could be made out.

Enterectomy in these cases was rendered difficult by the existence of adhesions. Sometimes it was possible to shell out a loop of bowel from a mass of surrounding tissue, but there frequently was too much infiltration to allow of this.

When the gut was surrounded by quantities of inflammatory material, and the mass attached as well to the adjacent viscera, it was found advisable, after dividing the bowel above and below and uniting the healthy ends, to bring the two diseased ends of the gut to the skin surface, and allow them to discharge there. An intestinal anastomosis, short-circuiting the bowel, might be better.

Of the eleven cases, four had died and seven recovered, three being alive from five to ten years after operation. Three of the oldest patients died; it thus appears that the prognosis is better in young patients.

Commenting on the post-mortem results, the author draws attention to the comparative frequency with which tuberculous lesions of the abdomen were complicated by malignant disease, and the difficulty which sometimes existed in differentiating between them, even histologically. In the author's series of cases, he had one probably associated with sarcoma, another with colloid cancer.

Reviews.

A TREATISE ON MASSAGE. By Douglass Graham, M.D. Third Edition, Revised, Enlarged, and Illustrated.
Philadelphia: The J. B. Lippincott Co., 1902.

The name of Dr. Graham is as closely connected with the introduction of scientific massage into this country as is the name of Dr. Baruch with the employment of hydrotherapeutic measures for the cure of disease. The first edition of this work appeared in 1884, and was the first book on massage to be published in the English language. The present edition deals thoroughly with this important non-medicinal remedial measure. After introductory chapters upon the history and mode of application and on the physiological effects

of massage, the author proceeds in subsequent chapters to deal with its employment in various conditions of disease, such as neurasthenia and anemia; then with massage of the internal organs, with special chapters upon massage, exercises, and baths in cases of cardiac disease, and upon the effects of these measures on the expansion of the lungs. Additional chapters contain descriptions of the results to be obtained by the use of massage in diseases of the nervous system, for sprains and bruises, for diseases of the joints, and in gout.

The author dedicates his book to the "Faculty of the Jefferson Medical College in his Student Days." We wish that every graduate could be credited with such a useful and practical contribution to medical literature.

The only criticism we have to offer is that the book might contain more illustrations to aid in the description of some portions of the text.

So much can be done by massage in the treatment of disease that physicians and trained nurses would do well to become possessed of this volume, and carefully study the methods which Dr. Graham has so clearly described for practical use.

A Reference Handbook of the Medical Sciences. By Albert H. Buck, M.D. Volume VII. Copiously Illustrated in Black and in Colors.
New York: William Wood & Co., 1904.

The present volume of this most excellent encyclopedia begins with an article upon saccharin and concludes with one upon the various forms of ulcer. Because of its alphabetical arrangement, it contains articles on such important subjects as the thyroid gland, the tongue, the tonsils, transfusion, tropical diseases, tuberculosis, and typhoid fever. The plates fully maintain the excellence which we are accustomed to in previous volumes. The article on typhoid fever contains much information in regard to its diagnosis, and particularly concerning its treatment, and is written by Dr. George B. Shattuck, of Boston. We notice that he quotes largely from such writers as Sir William Jenner, Todd, and Murchison. While it cannot be denied, on the one hand, that these clinicians had opportunities which make their opinions of very great value, it must also be remembered that the type of typhoid fever seen by them differed so largely from that seen by physicians at the present time that much of their advice cannot be accepted as high authority for modern conditions.

When a series of volumes appear one at a time, and each one deserves words of praise, it is difficult to find new phrases to express commendation. This is particularly true with this encyclopedia, which when it first appeared many years ago at once obtained for itself an enviable position in the confidence of the profession, and which in its new edition is so improved that it cannot fail to be received with increased favor. The physician who has these volumes possesses a library dealing with medicine in all its branches.

A Compend of Pathology, General and Special. By Alfred Edward Thayer, M.D. Second Edition.
Philadelphia: P. Blakiston's Son & Co., 1903.

In 1902 Dr. Thayer printed two Compends of Pathology which are now merged into a single volume, with the addition of a chapter upon the Pathology of the Nervous System. At the present time the book is a small octavo volume of little over 700 pages, printed on rather thin paper with a flexible binding, and so readily used as a manual. The illustrations are quite numerous, but most of them could be considerably improved. A number of them are taken from Stengel's Pathology, and still others from Delafield and Prudden's book.

As a brief condensation of our present knowledge in regard to pathology, the book is complete, but the student of medicine in studying this branch should not be content with so limited a manual, but should employ in addition a more exhaustive work, using this one for the purpose of testing and renewing his pathological knowledge.

The Right to Life of the Unborn Child.
New York: Joseph F. Wagner, 1903.

This brochure deals with the subject expressed in its title, the author taking the ground that interference during pregnancy is justifiable if it is necessary for the good of the mother. He rather savagely attacks those officers of the Roman Catholic Church who enforce the ecclesiastical law against such interference.

A Compend of Diseases of the Ear, Nose, and Throat. By J. J. Kyle, B.S., M.D.
Philadelphia: P. Blakiston's Son & Co., 1903.

This is one of Blakiston's Quiz-Compends, which as a class has been before the profession for nearly thirty years. It is open to the objection to which all such compends are open, but on the other hand, as with most of the other volumes in this series, it is a very good book of its kind. The author states in the preface that he has made use, whenever he thought it necessary, of the information obtainable in the larger and standard works upon this department of medicine.

Stories of a Country Doctor. By Willis P. King.
Chicago: The Clinic Publishing Co., 1903.

Ten or more years ago we noticed in the Gazette the appearance of the first edition of this book. The stories are known to many of our readers, and deal with various phases of medical and non-medical life in the western portions of the United States. Many a tired physician has laughed heartily over the anecdotes and illustrations in Dr. King's book, and we have no doubt that in its new dress it will continue as popular as it was when it first appeared some years since.

The Practical Care of the Baby. By T. W. Kilmer.
Philadelphia: F. A. Davis Co., 1903.

Unlike most books which have been published within recent years upon this subject the author has managed to state the facts that he wishes to bring before us in a small octavo volume of about 150 pages. The book is one which is intended more for the mother and nurse than for the physician, and its text and illustrations are, as a rule, excellent. The illustration on page 54, showing the method by which a rectal injection should be given to an infant, is extremely faulty because the bag is hung so high that the hydrostatic pressure is far in excess of that to which a child's bowels should be subjected. Eighteen inches is certainly sufficient. The present picture shows the bag at an elevation of four or five feet. Curiously enough the pictures, which are evidently taken from photographs, are taken from life so far as the nurse is concerned, but from dolls so far as the child is concerned.

Treatment of Fractures. By Charles Locke Scudder, M.D. Fourth Edition, Thoroughly Revised; 688 Illustrations.
Philadelphia, New York, and London: W. B. Saunders & Co.

This book, designed as a guide to the practitioner and student in the treatment of fractures, is singularly clear and direct in its teaching, and is admirably illustrated. In place of the expressions "compound" and "simple," the author uses "open" and "closed," and in the main is an earnest advocate for mechanical simplicity, though this might not be apparent from a perusal of that section devoted to the treatment of fractures of the lower jaw.

In the section devoted to fractures of the skull, perhaps as much attention as this subject deserves is not given to the question of post-traumatic edema. He holds that operative interference is demanded in penetrating or sharply depressed fractures.

Fractures of the nasal bones are reduced by intranasal manipulations. There are some very striking pictures of emphysema following fractures of the ribs. The treatment of fractured clavicle is according to recognized principles, and, as might naturally be expected, there are modifications of the Sayre dressing to suit individual cases. Operative treatment is advised where the deformity is great and cannot be held in reduction. Suturing is the method of choice.

Fracture of the humerus is treated at considerable length, and justly so, because of the disability which often follows from its incorrect adjustment. In fractures about the elbow-joint the position of forced flexion is the one preferred in suitable cases. There should, however, be no pain associated with the maintenance of this position.

In fractures of the neck of the femur the fixation method of treatment by Thomas's splint is advised, excepting in young adults, on whom operation by pegging may be practiced, providing the absolute fixation by the Thomas splint after a reasonable time has not effected union. Fractures of the shaft of the femur are treated by Buck's extension.

There is appended to the list of fractures a small section on luxations, particularly those of the cervical vertebræ and of the jaw, well worth careful study.

In the text the author has given such minute and careful directions for individual dressing that even one without hospital experience might by a careful study of this work treat the fractures he would be likely to encounter in an intelligent and modern way.

ANATOMY. Manual for Students and Practitioners. By Henry E. Hale, A.M., M.D. Medical Epitome Series, Edited by V. C. Pedersen, A.M., M.D. Seventy-one engravings.
Philadelphia and New York: Lea Brothers & Co., 1903.

This epitome, evidently designed for the student, is based on the standard work of Gray, and has been boiled down with an eye to the needs of examination. It seems particularly well adapted to the purpose for which it was written. There has been much adverse criticism of condensed works of this kind. If well done, however, and this can truly be said of the present book, they are distinctly valuable, as is proven by their popularity with medical students.

ELEMENTS OF SURGICAL DIAGNOSIS. By A. Pearce Gould, M.S. Lond., F.R.C.S. Eng. Third Edition, Revised and Enlarged.
Chicago: W. T. Keener & Co., 1903.

A new edition of this book, revised and enlarged, is thoroughly acceptable, since though the first edition was not widely popular it contains so many elements of value that those who became familiar with it learned to place great dependence on its teaching. This book is meant to lay the foundations of surgical diagnosis rather than to outline a particular method of arriving at the diagnosis in individual cases. In other words, it deals with principles which once thoroughly established in the practitioner's mind enable him to apply them to individual cases.

There is an excellent introductory chapter dealing with the methods of examination and with general symptoms. Then follow the diagnosis of injuries, including of course wounds, contusions, ruptures, dislocations, and fractures. There is a section on diagnosis of swellings and tumors, inflammation, gangrene, diseases of the joints and bursa. Thereafter follows the diagnosis of the various affections considered from a regional standpoint.

The most experienced surgeon cannot fail to derive benefit from the possession of this excellently arranged book, and the general practitioner who has occasional dealings with surgical cases should find it invaluable.

NON-SURGICAL TREATISE ON DISEASES OF THE PROSTATE GLAND AND ADNEXA. By George Whitfield Overall, A.B., M.D.
Chicago: Rowe Publishing Co., 1903.

In these days of strenuous therapeutics the tendency of which steadily seems to be toward operative measures, the appearance of a work devoted to non-surgical treatment of the prostate gland and adnexa cannot but be a refreshing surprise. When, however, it is found that the author places his trust in electrolysis and cataphoresis for the purpose of stimulating vasomotor action, relieving thereby congestion and inflammation, dissipating morbid tissue, and chemically decomposing the lime and earth concretions that form in the ducts and follicles of the prostate, his reason for rejecting the surgeon and his knife can be understood.

To those interested in the opinions of the enthusiastic believer in the efficacy of electricity the volume may prove interesting reading.

Correspondence.

LONDON LETTER.

BY GEORGE J. STILL, M.A., M.D., F.R.C.P.

The inexhaustible interest of medicine is perhaps nowhere more evident than in the never-ending round of society meetings. Here in London there is a veritable *embarras de richesse* in the matter of medical societies; one might attend such meetings every night of the week except Sunday, and on some evenings it is only the lack of any convenient provision for being in two places at once which prevents one from attending, say, three or four societies within the space of two hours. As a general rule the communications are all of a high order, and of late the increasing use of lantern demonstration, and at two of the societies the use of the epidiascope, have added greatly to the interest of the meetings.

At the Clinical Society the etiology and treatment of gastric ulcer has recently

been under discussion. The treatment of this condition when complicated by severe hemorrhage or perforation has been passing during the past few years more and more into the hands of the surgeon, and, as the results seem to show, with very good reason; but it would seem that even when there are no complications and the only trouble is intractable dyspepsia or dilatation of the stomach associated with gastric ulcer, the physician is now to give way to the surgeon. Mr. Moynihan reported 100 cases of gastric ulcer treated by operation, and out of these 85 were uncomplicated cases. The whole mortality was two—*i.e.*, two per cent—and of the 85 uncomplicated cases only one died. There were 44 males among the 100 cases, and the ages varied from seventeen years to sixty-two years. The operation done was gastroenterostomy, and the walls of the stomach and intestine were simply stitched together; no mechanical appliance of any sort was used. Mr. Moynihan stated that he operated upon about a fourth of the whole number of cases of chronic gastric ulcer in which he was consulted. He thought that the operation ought not to be considered a last resource; if done earlier it might prevent much suffering.

It would have been interesting to have heard something more of the medical aspect of this important question; the mere fact that an operation relieves or even cures a disease does not by any means prove that it is the best or even a justifiable method of treatment in any but exceptional cases—unless indeed it is clear that the condition is not amenable to simpler methods. One physician, Dr. Edmund Cantley, expressed his opinion definitely that gastric ulcer did not as a rule require any such radical treatment; and one or two remarks made by other physicians in the discussion rather suggested doubts as to the expediency of any routine operative procedure.

A curious suggestion as to a possible cause of gastric disease in adults was made by Mr. A. E. Maylard at the same meeting. He read a paper in which he attributed such disease to congenital narrowness of the pylorus; the evidence however of any such obstruction in infancy in these cases was not forthcoming, and the congenital or even infantile origin cannot therefore be regarded as proven.

The important subject of functional albuminuria was discussed recently at the Medical Society. The general feeling seemed to be that albuminuria must always be viewed with suspicion; it often means renal disease past or present; intermittence of albuminuria is common during convalescence from nephritis; previous damage to the kidneys by various acute diseases might leave a tendency to albuminuria from very slight causes. Dr. Pavy thought that the term "functional" is more appropriate than "physiological" as applied to the cases of albuminuria under consideration. The question whether casts are ever present with a purely functional albuminuria has been much debated; some observers have described them as present occasionally in small numbers, but Dr. Pavy said that if there were any casts he would refuse to allow that the albuminuria was "functional." This is obviously a point of great importance both in prognosis and in treatment. According to Dr. Pavy, however, even if the albuminuria is truly functional it may in a certain proportion of the cases be the precursor of definite renal disease. Dr. Samuel West considered that there is a distinct increase of risk to life where functional albuminuria is present, especially in persons over thirty years of age.

Anything new in the way of treatment for whooping-cough has always some interest, for probably there are few diseases which have taxed the resources of the Pharmacopœia as pertussis has done. Dr. Ker has recently advocated the use of open air treatment for the most fatal of all the complications of whooping-cough, namely, bronchopneumonia. By this method he reduced the mortality due to bronchopneumonia from 71 to 26 per cent. The only contraindications are laryngitis and convulsions. The precautions taken were practically the same as those usually adopted in the open-air treatment of tuberculosis. The most obvious effects were improvement of the appetite and increased sleep; the paroxysms and the temperature were not affected, but tubercle, which as every one knows who has seen much of the morbid anatomy of whooping-cough is too commonly a complication of that disease, was observed much less frequently.

The treatment of enlarged prostate is still under discussion. At the Harveian

Society Mr. Mansell Moullin stated that in his opinion so long as catheter life can be carried on successfully with passage of a catheter not oftener than twice in the twenty-four hours, nothing further need be done; but too often sooner or later attacks of local congestion occur, making the passage of a catheter more and more difficult, there is frequent hemorrhage, and eventually in most cases some sepsis takes place, with all its attendant train of evil results. When the obstruction is due chiefly to prostatic overgrowth there is at this late stage no alternative but operative procedure of some kind. In some cases division of the vasa deferentia checks the tendency to recurring attacks of congestion. Mr. Moullin thought that castration, while it had undoubtedly been overpraised at first, has now fallen into a not altogether deserved discredit. The success, however, of the various methods of actual removal of the prostate is now such that this more radical method of treatment has become general, and undoubtedly no procedure has given better results than removal through the bladder. The operation originally performed by McGill fourteen years ago is practically the same as that now in general use.

To one statement there was considerable exception taken. Mr. Moullin had declared that as the result of habitual catheterization the bladder would lose its contractility in even so short a period as two years. Mr. Buckston Brown quoted a case in which after twenty years of catheter life relief by operation was followed by perfect action of the bladder; and Mr. Freyer said that there is no such thing as atony of the bladder as a permanent condition, and that not a single instance is known to have occurred. Mr. Freyer hoped that vasectomy and castration were things of the past in this country. Some speakers thought that if proper care were taken to insure asepsis in catheterization the outlook would be much more hopeful than has been suggested, and that in many cases operation never becomes necessary.

I need not refer in detail to the admirable lecture which was recently delivered by Sir Hermann Weber before the Royal College of Physicians on means for the prolongation of life. The lecture has since been published in full, but I cannot forbear from picking out some of the practical wisdom with which it abounds for the benefit of those who may not have the opportunity of reading it.

Oliver Wendell Holmes once said that the first thing to be done by him who would attain to a ripe old age would be to select two long-lived persons for his parents, and I note that foremost in this lecture stands heredity. But Sir Hermann is no fatalist on the matter of heredity; even if we cannot choose our parents he thinks we can influence heredity ultimately by cultivating a tendency to long life, particularly by well selected marriages. Next in the effort to live long he places exercise, particularly walking exercise, as invaluable, and to be taken in rain and shine alike; once a week he would have us take a long country walk lasting four or six hours, with such frugal fare as a sandwich and an apple or an orange, with the idea that the excretion of waste products is promoted thereby. More valuable still is a walking tour of three or four weeks in a mountainous district once or twice a year; this improves the action of the heart, increases the power for mental work, and enables one to face life's work and worry with a calm and even mind. To counteract the stiffness of old age special exercises are to be used, and respiratory gymnastics are to be practiced to prevent the tendency to senile emphysema and to improve the circulation.

On the subject of food Sir Hermann's advice is moderation in all things. As old age advances less food is required, and the quantity is to be diminished gradually. He deplores the neglect of that thorough mastication which is so essential to good digestion, but curiously enough seems to forget that the grinders may cease because they are few, not because there is any lack of willingness to use them. The value of regular brain work, not only in maintaining the mind in full activity in old age, but probably even in prolonging life, is also to be remembered. Early to bed and early to rise is Sir Hermann's principle with regard to sleep; he wisely abstains from laying down any rule as to the exact number of hours of sleep required, but any comfort which the sluggard might derive from this fact is disturbed by the quotation of John Wesley's example, who never slept more than six hours, and rose regularly at 4 A.M. for sixty years. The whole lecture is an am-

plification of Luther's motto, which is quoted: "Rast ich, so rost ich." Rest means rust; it is idleness as the years advance, not work, which hastens the wearing out of the organs.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Professor Hayden, the well known stomach specialist, treats gastric ulcer in the following manner: The patient is put to bed and given very little food. The latter should consist of a quarter of a glass of milk given every two hours, this to be done during four days. Enemas are given thrice daily, consisting of:

Tepid water, 200 grammes;
Dry peptone, 30 grammes;
Yolk of 2 eggs.

This should be injected after a cleansing enema. The fourth day the quantity of milk may be increased to half a glass every two hours; the eighth day three-quarters of a glass may be given, and the twelfth a whole glass. Not more than three liters should be given. After twenty days, if the patient does not vomit and digests well, the quantity of milk may be diminished and solid food given progressively. This is given in the following order: milk soup, three times a day; soft-boiled eggs, broth, broth with the yellow of an egg, meat juice, custard; white meat, soft and boiled; mashed vegetables; and lastly, bread. Subnitrate of bismuth should be used to combat the gastric irritation; 20 grammes of subnitrate in 100 grammes of water may be given at one dose. This treatment may be continued eighteen days, and warm fomentations applied to the epigastrium. Later artificial Carlsbad water may be used, prepared in the following manner:

Water, 1000 grammes;
Sulphate of soda, 3 grammes;
Bicarbonate of soda, 2 gr. 50;
Chloride of sodium, 1 gramme.

The patient drinks 250 grammes the first day in three doses, 300 the second day, 350 the third day, and so on up to 500 grammes, this preparation being warmed. This should be continued not over a month. The whole treatment lasts about seventy days, and is very efficacious in recent cases.

A Russian physician, Dr. Preissmann, of Odessa, has employed a treatment for hemorrhoids which has given him excellent results, and which consists in the local application of glycerin and iodine. The following formulæ are used:

(1) Iodide of potassium, 2 grammes;
Pure iodine, 0.20 centigramme;
Glycerin, 35 grammes.
M. Weak solution.

(2) Iodide of potassium, 5 grammes;
Pure iodine, 2 grammes;
Glycerin, 35 grammes.
M. Strong solution.

The patient takes a tepid sitz bath, and then applies hourly small tampons of absorbent cotton dipped in one of these solutions. Later this is repeated less frequently until the hemorrhoids disappear completely.

In a recent number of the *Journal of Practical Medicine and Surgery* Dr. Foly recommends a method for checking the pain and hemorrhage in certain forms of blennorrhagic cystitis. He has a solution of 20 grammes of antipyrin for a liter of water prepared, and adds 5 to 10 grammes of laudanum of Sydenham (vinum opii). This is injected into the bladder by means of a soft-rubber catheter and a syringe, half a liter being injected in small doses at a time, and a certain amount being left in the bladder. This is done twice a day, and the results seem to be excellent.

At Unna's clinique at Hamburg peroxide of hydrogen 30 volume has been used as a treatment of nevi, a drop of the solution being applied twice a day and allowed to dry, the spot being then covered with oxide of zinc plaster. In two or three weeks the pigmentation disappeared.

At a recent meeting of the Medical Society of the Hospitals, Dr. Soupault, a well known specialist for stomach troubles, described a form of appendicitis which is sometimes seen in women at the menstrual period, and which is often mistaken for dysmenorrhea. There is, however, in this pain in the right iliac fossa, often enough somewhat below McBurney's point, slight diarrhea for one or two days, and nausea and vomiting. Symptoms of general infection are also manifest, such as headache, shivering, fever, high pulse (about 100). These symptoms often come on shortly before the periods, and cease at the end. An operation is found necessary when the

attacks have taken place a certain number of times.

Experiments were carried out last summer with Marmorek's antituberculous serum in Dr. Championnière's service at the Hôtel Dieu. Five patients suffering from the following diseases were inoculated: Pott's disease, tuberculous abscess of the hip, tuberculosis of the testicle with pulmonary tuberculosis. No real improvement was noticed. None of the patients with Pott's disease had abscesses as the result of the injections. Another, whose testicle had diminished in size, died three days later from tuberculous meningitis.

Dr. Vidal, a French military surgeon, has recently published in the *Archives of Military Medicine* an essay on the immunity of Arabs from typhoid fever. It is a well established fact that Arabs are predisposed to pneumonia, but that on the other hand few have typhoid fever. The reason for the infrequency of bowel trouble amongst them is to be found in their regimen, which consists in milk, eggs, dates, and various meal stuffs. The usual beverage is water or tea and coffee. Very little meat and no alcohol are taken. On the other hand they use a good deal of red pepper, cloves, thyme, saffron, mint, which have an antiseptic action. This may explain the rarity of intestinal troubles in Algeria and other lands where Arabs are found.

In an article on the treatment of hyposthenic dyspepsia, which is a disease frequently found in women, Dr. Martinet summarizes his medicinal treatment in the following manner:

1. At the beginning of the midday and evening meals, take in a glassful of liquid (excepting milk) one to three teaspoonfuls of the following mixture:

> Ordinary phosphoric acid, 5 to 10 grammes;
> Acid phosphate of soda, 20 grammes;
> Distilled water, 200 grammes.

At the end of the midday and evening meals take 50 centigrammes to one gramme of amylaceous pepsin in capsules, or in a granular form. Take two hours after the meal, in a little water, a teaspoonful of the following mixture:

> Essence of mint or badiane, 15 drops;
> Calcined magnesia,
> Cream of tartar, ää 30 grammes;
> Lactose, 40 grammes.

Shortly after drink a cup of chamomile tea. or linden-tea, and in certain cases 50 centigrammes to one gramme of pancreatin (pills or granular form).

2. Every morning, later every other evening, take an enema of boiled water at a temperature of 36° C.

3. Every evening massage of the large intestine.

4. Wear an abdominal band in elastic tissue.

Dr. Verhoogen, a Belgian physician, has recently written an interesting article in the *Medical Journal of Brussels* on pneumonia in the aged. He insists on its onset being so insidious that death sometimes comes on suddenly. Dyspnea, however, is an important symptom. Convalescence is very tedious, lasting several weeks. The mortality is very high, being as much as fifty per cent when the patient has reached the seventieth year. The treatment is not active. Dry cupping and the hot pack will facilitate the pulmonary circulation. Cold applications are on the contrary dangerous. Tartar emetics should never be used. Digitalis is much better indicated than strychnine to sustain the heart. In the period of resolution small doses of iodides are to be recommended, and creosote is of use in preventing secondary infection.

A commission has recently been named by the director of the Assistance Publique to examine the question of using horse-meat instead of beef for a certain number of hospital patients. Raw meat is often ordered for tuberculous patients, and as the quantity used is increasing daily, it was thought well to see if some cheaper meat might not be used.

Brieux's famous drama, "Les Avariés," in which the disastrous consequences wrought by syphilis in the life of a family are described, has been completed by a novel, by Paul Bru, the director of the St. Antoine Hospital. It is called the "Insexuée," a word which is hard to translate, and which indicates the condition of a woman whose ovaries have been removed. The chief character is a woman, who is infected by her husband, a libertine affected with blennorrhagia, and after some months of suffering an operation is performed for the removal of her ovaries. Later insanity sets in.

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Original Communications.

A SHORT SUPPLEMENT TO DR. BARTON COOKE HIRST'S PAPER ON THE TREATMENT OF PUERPERAL ECLAMPSIA.

BY JAMES TYSON, M.D.,

Professor of Medicine in the University of Pennsylvania.

Two measures of treatment were mentioned by Dr. Hirst in his paper read some weeks ago[1] which it appears to me ought to be enlarged upon.

The first of these was the use of morphine in the treatment of puerperal convulsions. It will be remembered that Dr. Hirst was cautious in recommending morphine, the hypodermic use of which is so strongly urged by some. He was good enough to refer to my own teaching as furnishing the foundation of his belief. It is true I have always advised caution in the use of morphine in Bright's disease, and with reason, I believe, because I have seen uremia precipitated by it. At the same time I am not surprised to hear it claimed that the drug has been of signal service in the treatment of puerperal convulsions. Modern clinical studies have cleared up the situation and experiment has confirmed its teachings. The truth is that morphine is dangerous mainly, I am almost tempted to say, only in chronic interstitial nephritis. The majority of cases of puerperal eclampsia are due to parenchymatous or epithelial nephritis. In these morphine may be used with comparative

[1] See GAZETTE for February, 1904.

safety, and brilliant results. But since interstitial nephritis is responsible for a few cases, some risks must be run if morphine is indiscriminately used. As a precise diagnosis is not often made, the safest course is to get along without it or defer it until other measures fail.

I have said that experiment has confirmed the results of clinical teaching, and explained them, and I will briefly recount the reasoning. It is well known that the normal kidney excretes many substances taken into the blood by the usual channels, some of which manifest themselves by an odor imparted to the urine—such as turpentine, which is recognized by the odor of violets; such as asparagus, recognized by a peculiar disagreeable odor remembered by all who have observed it. As far back as 1820, Halin noticed that turpentine failed to evidence itself when administered to a gouty patient, and seventeen years later Roger notes that in two gouty patients who partook of a meal of asparagus the usual odor was not exhibited. Opium has been frequently known to produce toxic effects in nephritis, as witness a teaspoonful of paregoric in one of my own cases referred to by Dr. Hirst. Mercurials are well known to be badly borne in nephritis, and salivation is easily induced by mercury administered in this disease. In like manner iodine, salicylic acid, and quinine are not excreted by diseased kidneys.

In 1897 Achard and Castaigne published results of the administration of methylene blue by hypodermic injection, five centigrammes of the powder being dissolved in twenty parts of sterile water and deeply injected into the buttock under antiseptic precautions. The patient was directed to pass his urine at the end of one, two, four, eight, and twelve hours, and so on as long as urine continued to be colored. In normal cases the blue or bluish-green tinge usually appears in the urine within the first half-hour, and always within an hour. In certain forms of nephritis it was found to be several hours before the color appeared. In normal cases the maximum coloration, a deep indigo, is reached in about three hours, and the urine is not clear for two or three days. The drug was given subcutaneously in order to obviate errors from varying rates of absorption due to temporary or permanent gastric and intestinal derangements, as illustrated by a case of gastric cancer in which the blue did not appear in the urine until the fifth hour when given by the mouth. Bard and Bonnet in France and Richard C. Cabot of Boston repeated these experiments, modifying and extending them, and arrived at the same general conclusion with Achard and Castaigne, viz., that impairment of the power to eliminate methylene blue is the effect of renal insufficiency, whether functional or organic, temporary or permanent.

Bard and Bonnet add the important fact bearing on our topic, viz., that while in interstitial nephritis there is delayed secretion of the blue, in epithelial or parenchymatous nephritis the blue passes through the kidneys if anything more quickly than in health, pointing to an excess of permeability rather than a deficiency. To this Potoski and Guenard added the further important fact that the blue passes the kidneys as quickly in eclamptic cases as in labors without eclampsia. Menu and Mercier confirm this as to the first appearance of the blue, but noted that in albuminous cases the excretion was prolonged and irregular, the amount of blue showing violent oscillations, accompanied by parallel oscillations in the amount of albumin and solids.

Here is the explanation sought. The convulsions of *parenchymatous* nephritis may be treated by morphine with safety because the renal epithelium is still capable of eliminating it. And since most of the cases of puerperal eclampsia occur in connection with parenchymatous nephritis, it is evident why results are often so brilliant. Should it happen, however, as is sometimes the case, more particularly in cases where the nephritis has preceded pregnancy, that the disease is interstitial nephritis, the use of morphine is attended with large risk.

The second measure alluded to is the treatment of uremic convulsions by hypodermoclysis or intravenous injection of normal salt solution associated with free sweating, and the sweat bath, with a view to dilution and elimination of the toxic agencies which produce the convulsions. I can confirm all that Dr. Hirst said about the value of this treatment, but in order to secure the best results I hold that the sweat should precede the hypodermoclysis; nay more, I think this is necessary in order to avert a danger which I believe exists in

connection with the use of hypodermoclysis; for it is quite possible to overload the venous side of the circulation and thus dangerously dilate the right heart. Indeed, I am not certain that I have not seen a fatal termination precipitated by such a course. If, on the other hand, the blood be first depleted either by bloodletting—and I am certain that we would do well to use bloodletting more frequently in other than puerperal cases—or by sweating, we then make room for the salt solution to be subsequently introduced. The depletion removes a certain amount of toxic matter, while that which remains is further diluted by the salt solution. The sweating and hypodermoclysis may be used daily and even twice a day in urgent cases.

A SMALL HOSPITAL EPIDEMIC OF PNEUMOCOCCUS INFECTIONS, WITH REMARKS ON THE TRANSMISSION OF PNEUMONIA AND THE METHODS BY WHICH IT CAN BE PREVENTED.

By David L. Edsall, M.D.,
and
Albert A. Ghriskey, M.D.,
Philadelphia.

The extensive prevalence of pneumonia and the very high mortality of the disease have, within the last few years, been subjects of frequent discussion; and there is general interest in determining the manner in which the disease is propagated and the methods by which it can be controlled. We know that pneumonia is an infectious disease, and we know many facts concerning the bacteria that usually produce it. We recognize also that infections do not arise from mysterious sources that are essentially beyond human ken, but each day see more clearly the fact that those sick with infectious diseases constitute the supremely important sources of dissemination of those diseases. We are likewise growing into a clearer recognition of the equally important fact that bacterial diseases are not in part transmissible, in part intransmissible, but that they differ only in the readiness and directness with which they may be transmitted.

Yet the attitude of the profession toward the control of pneumonia has been somewhat passive; for in spite of this general knowledge there are certainly few physicians who adopt more active precautions to prevent the spread of the disease than to have the sputum from pneumonia patients destroyed, and perhaps to utter a gentle warning as to the possible danger in very close contact with those sick of the disease.

It is quite true that direct transmission of pneumonia from case to case seems to be comparatively rare; that the disease does not generally appear in epidemic form, but develops sporadically; and that the immediate sources of infection are, at present, usually not discernible. But these facts do not, in our belief, justify the statements recently made by a number of authors, that until our knowledge of the manner in which the disease is transmitted becomes more exact we cannot hope to exercise much control over the spread of pneumonia; and should not urge the general public to adopt measures for avoiding the disease, lest such suggestions cause undue apprehension. As a rule we are unable to protect individuals from pneumonia, and can only urge upon them general hygienic measures, such as those recently described by Reynolds. We can, however, by giving the public a proper understanding of the matter, probably prevent a large proportion of the cases of direct transmission; we can, in localized epidemics, search for the source of infection, and sometimes discover and destroy it; and we can with wisdom undertake somewhat more active measures than those usually adopted to prevent the spread of the infection from its chief source—*i.e.*, from those that have acquired the disease.

We are, to be sure, limited to general principles in carrying out most of these measures; since we cannot follow the course of the infectious material so clearly as we often can, for example, in those infectious diseases, such as typhoid fever, that are usually water-borne. It is, however, scarcely to be expected that special methods of preventing each individual infection, particularly those that are airborne, will be discovered for many years, if at all; consequently, for a long time to come, and perhaps for all time, our only method of controlling most infections will be through the use of the general principles of preventive medicine.

That such methods are effectual, although they work slowly, has become ap-

parent through the results in tuberculosis, which furnish an inspiriting illustration of the possibilities in combating a disease that is largely air-borne, when it is fought by a wide-spread attempt to institute general hygienic measures and by arousing general public interest. Tuberculosis is not the only disease that will respond to such measures. It has become, rather, as Clifford Allbutt puts it, "the flogging schoolmaster" driving in facts concerning the control of infections; and many of the principles that are used in preventing tuberculosis are applicable in controlling pneumonia. This is indicated by our general knowledge of the disease, and particularly by the literature on the subject of epidemic pneumonia, to some of which we shall refer. The fact that these measures may be less successful in pneumonia than in tuberculosis is no argument against their adoption, if they are likely to meet with any success at all.

We shall first report a series of recent observations of our own. While the number of cases is small, they exhibited some points that are of importance in relation to epidemic pneumonia.

When one of us (Edsall) went on duty in the men's medical wards of the Episcopal Hospital, April 1, 1903, there was, in the small side ward, which contains six beds, a case of extremely grave pneumonia, the patient occupying bed 2. This man was at that time but half-conscious and was completely prostrated. He had extensive consolidation of both lungs, and also arthritis of the right wrist-joint. He was evidently overwhelmed by pneumococci; for blood cultures gave a free growth of these organisms, not only when large quantities of blood were used, but even with tube cultures on hydrocele fluid, and when only two drops of blood were used.[1]

It is worth while in view of subsequent developments to note that on account of the patient's mental condition it was impossible to prevent his expectorating on the bedclothes and the floor. The next day he was still worse, and on the day after (April 3) he died. The bedclothes were, of course, entirely changed; the bed was aired, as usual; and the neighboring portion of the ward was repeatedly cleansed, both during and after the man's illness.

On April 4 a man in the second week of a mild attack of typhoid fever was admitted and put in this bed. When he had been in the bed about twenty-four hours, blood cultures were taken for the typhoid bacillus. To our surprise the culture showed a pure growth of pneumococci. This patient exhibited no leucocytosis, either at this time or at any subsequent period; and he had no signs of pneumonia or of any other local pneumococcic infection, except a fairly marked bronchitis, which might possibly have been of this nature. The pneumococcus could not be looked for in the sputum as he did not expectorate. The bronchitis persisted for ten days, but did not influence his general condition. He passed through a mild attack of typhoid fever and recovered entirely.

This man had meanwhile (April 5) been transferred from the previously mentioned bed in the side ward to the main ward. On April 6 a man of twenty-two years with sciatica was admitted. Because his suffering from the sciatica led him to be extremely noisy he was placed in the side ward, and chanced to be put in bed 2. He remained there for about thirty-six hours, and was then transferred to the main ward. Less than two days after this transfer had been made he developed pneumonia of the entire left lower lobe, which, however, was of mild and very brief course; the patient showed almost no evidence of toxemia except fever, which ran at about 103°. Crisis occurred on the third day, and undisturbed resolution proceeded rapidly from this time.

On April 8 a boy of fourteen with tubercular meningitis was placed in bed 2 in the side ward. He had previously been in bed 5 in the same ward for a week, and during that time had exhibited the ordinary symptoms of tubercular meningitis, without leucocytosis, and without any signs of pulmonary involvement. Two days after having been placed in bed 2 he showed an increase in temperature, which persisted; he developed a leucocytosis of 14,000; and his respirations grew rapid and remained so. He was already stupid and was breathing poorly, and it was difficult to make a satisfactory exam-

[1]This and the other bacteriological work reported in this paper was done by Dr. Ghriskey.

ination. It was never determined that he had pneumonia; but we have always suspected, in view of the facts concerning the other cases described in this report, that he had either pneumonia or possibly some other form of pneumococcic infection. Five days after having been placed in this bed he died. A post-mortem could not be obtained.

On April 14, the day after this patient's death, a man of forty with mild alcoholism was placed in bed 2 in the side ward. On the following day this man was apparently in almost normal condition, except that he was somewhat exhausted. On the 16th he exhibited a sudden rise in temperature to 102°, and had pain in the right side; and later in the day he developed clear signs of pneumonia of the right lower lobe. These symptoms continued for two and a half days, with otherwise very mild constitutional disturbances. There then occurred a sharp crisis; the pulmonary exudate underwent rapid resolution; and the man proceeded to a perfect recovery, though his convalescence was much prolonged by persistent and exhausting diarrhea.

On April 15 there was admitted and placed in bed 5 in the side ward (opposite to and about ten feet away from bed 2) a man at the end of the first week of typhoid fever. On the 17th a blood culture was taken from him with the expectation of finding the typhoid bacillus. Again a pure culture of the pneumococcus was obtained. This man, like the other typhoid patient, ran through a mild course of typhoid fever of the usual duration. He exhibited no leucocytosis, and had not even a noteworthy degree of bronchitis, and there was no evidence of any other complication of his typhoid fever. Only one peculiar clinical feature of the case was noted: the temperature showed remarkable diurnal fluctuations, ranging nearly every day throughout the fastigium of the disease from normal or from slightly below or above normal to 102° or 103° F. He recovered without any special incidents in his case.

When the second case of pneumonia developed in bed 2, and when, to our great surprise, a second pure culture of pneumococci was obtained in this ward from a typhoid patient, it appeared evident that a pneumococcus contagion was occurring. The ward was afterward formalized, and no cases occurred subsequently.

From the story that has been told it may seem that it was only carelessness or inattention that permitted these conditions to continue as long as they did. This, however, is hardly true, for the side ward is used largely for the temporary detention of patients that are noisy or are in other ways likely to cause disturbance in the main ward. Patients are usually kept in the side ward for a short time only, and are then transferred to the main ward; and of course there is, as a rule, no occasion to make a note of the beds in which they have been placed in the side ward.

At the time that these cases occurred the service was very active, as many as six or seven new cases being frequently admitted to the men's wards in a day, and it was not at first evident that events had followed the course described.

The typhoid patient from whose blood pneumococci were first obtained had already been in the main ward two days when the result of the culture became known. The man with sciatica had been in another part of the main ward for two days when his pneumonia developed. There was then a pause of about a week, during which time nothing especially suspicious happened. At the end of this period the second case of pneumonia developed, and the second instance of pneumococci in the blood of a typhoid patient appeared. After this the possibility of contagion at once suggested itself and was acted upon, and investigation showed the facts that have been stated concerning the beds that the patients mentioned had occupied.

This little epidemic, then, consisted of only two cases of actual pneumonia, together with two extremely peculiar cases in which pneumococci were apparently present in the circulation without causing any of the usual signs of pneumococcus infection. In spite of the paucity of cases the observations are, however, interesting in several ways: in the unusually striking evidence that a well localized source of infection had been provided by the original fatal case; in the evidence concerning the period of incubation; and in the extreme mildness of the infections. In connection with the latter point, the two

typhoid cases that yielded cultures of the pneumococcus are of especial interest, though their meaning is perhaps somewhat questionable. They require particular discussion, which will be given later.

The fact that pneumonia sometimes becomes distinctly epidemic is freely granted by all who have interested themselves in the matter, and is now sufficiently well known to be the subject of frequent comment in the public press. The belief that the epidemicity of the disease is a recently established fact is not uncommonly met with, though it is hardly necessary to say that such a belief is entirely erroneous. During the last quarter of a century attention has been especially directed to this point, but the fact that the earlier literature contains numerous references to pneumonia epidemics may be seen at a glance by consulting Hirsh. This author, in discussing the history of the disease, collected massive evidence of its epidemicity from the literature of the earlier part of the nineteenth century and from that of several preceding centuries; and many of the records to which he refers are unquestionably authentic. His reference to Savonarola apparently demonstrates that a belief in occasional epidemic outbreaks of pneumonia and apparently in the contagiousness of the disease existed at least as early as the middle of the fifteenth century.[1]

It is of interest that Savonarola, as well as numerous other early authors, mentions conditions not unlike those that existed last year in Chicago and this year in New York City. The terribly destructive epidemics of pneumonia in those cities have excited great public interest, and have been discussed by many of the laity, and indeed by many of the profession, as if they were unprecedented.

But while the epidemicity of pneumonia has long been recognized and is now well established, there has until recent years been a strong tendency to attribute the epidemics in general, as well as the individual cases observed in these epidemics, exclusively to atmospheric or other indefinite source, and to ignore or flatly deny the possibility that those sick with the disease may transmit it to others. At times a voice was heard insisting upon the occasional contagiousness of pneumonia, but stronger voices held the ear of the profession. It is not at all remarkable, however, that in recent years the attitude concerning this point has undergone a decided change. The demonstration that pneumonia is an infections disease and that certain well known bacteria (especially, of course, the pneumococcus) are its usual causes, has opened the way for the ultimate recognition of its possible contagiousness; and with the advance in the knowledge of infections, the rigid but artificial distinctions between contagion and infection that were once made have been gradually cast aside, until now there is no distinction between the two terms that can be constantly maintained—unless it be based upon necessity for residence of the causative agent in an intermediate host.

The literature on epidemic pneumonia makes it practically clear that infection may occur (1) through wide-spread atmospheric dissemination; (2) through the agency of some local source; and (3) through direct contagion from persons sick of the disease.

A review of the literature of the last three decades bearing upon the contagiousness of pneumonia can scarcely leave any one unconvinced of the fact that direct transmission sometimes occurs. It is quite true that absolute proof of this is exceedingly difficult to obtain, but the circumstantial evidence is so strong and has been so frequently furnished that it can no longer be rationally denied. A number of authors and many practitioners seem to be still skeptical concerning this point. They may properly remember, however, that even in diseases in which direct contagion is known to be the common method of transmission we cannot, in a vast proportion of cases, demonstrate that this has occurred or determine the source of infection, and that in tuberculosis, for example, absolutely indubitable evidence of the source of the disease is almost impossible to secure; yet men of rational thought scarcely deny, nowadays, that case-to-case transmission of tuberculosis frequently occurs.

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[1]Quoted by Hirsh: Handbuch der Historisch.-Geographisch. Pathologie, Bd. iii, p. 125; Savonarola (Practica, Tr. vi. cap. 10, rubr. 13, Venet., 1497, p. 113 b): "In civitate nostra Paduæ et Trevisii et Venetiæ 1440 de mense Martii autea et post apparuit pleuresis mala, quæ erat contagiosa, ex qua multi et plurimi moriebantur."

The chief evidence that contagion takes place in pneumonia is afforded by a large number of observations of instances in which several members of a household or other persons that had come closely into contact with each other have sickened with this disease soon after the development of a primary case among their number. In some of these instances the activity of indirect atmospheric infection was made extremely improbable by the fact that persons living in a region in which pneumonia was more or less epidemic have escaped the disease for a considerable length of time, until they had either visited or assumed attendance upon a pneumonia patient; but that soon after exposure they have been taken ill with the disease. In a number of these instances the person or persons who acquired the disease slept in the same room or in the bed with the original patient.

A number of broad general facts indicating the contagiousness of pneumonia have been brought out by Riesell: (1) As just stated, there are, in epidemics of the disease, many instances of escape from attack prior to visiting infected houses or to actual contact with other cases, while attack has followed such exposure. (2) In epidemics the disease is often confined to one settlement, and the cases occur chiefly among those coming into close relations with one another; while neighboring regions, in which the conditions of ground-soil, etc., are entirely similar, escape. (3) Usually there is, at the same time, a wide-spread distribution of the cases in a settlement that is actually infected; this, in connection with the last point, indicating transmission from case to case, rather than local soil-infection or the like. (4) In connection with the latter point, Riesell mentions also the rarity of absolutely isolated house epidemics; and further, (5) the time periods between the appearance of individual epidemics in small, isolated villages make improbable the view that these epidemics are always due to conditions of the atmosphere or of the soil. Riesell considers that these conditions cannot be entirely explained by peculiarities of the ground-soil or of the atmosphere, but that they can be explained upon the basis of transmission from person to person.

There are so many observations of instances in which contagion seems extremely probable, and this question is so thoroughly settled, that it is not advantageous to attempt to discuss the literature concerning it. A recent observation made by Spaet deserves, however, a little attention. In the epidemic at Neubrunn, which lasted from the early part of May to the middle of July, 1903, there were sixty-three cases in a population of 454, and over fifty of these cases occurred prior to June 6. Of the remaining cases, five developed within three days (from June 22 to June 24, inclusive); and all these five cases occurred in persons who had attended the funeral of a pneumonia patient on June 12, the funeral having been held in the infected house. While these facts do not demonstrate positively that these five persons had become infected in the house mentioned, the observation is of interest in its suggestion that a very slight exposure may cause infection.

The circumstances attending hospital epidemics of pneumonia offer some of the most striking evidences of its occasional contagiousness. That hospital epidemics occur has been clearly recognized for years; and since these epidemics are usually limited to one ward, the probability that contagion spreads the disease is always extremely great. Indeed, this has, in many cases, been almost absolutely proved. The cases reported by us are important in that they show with remarkable clearness the evidences of local infection derived from the original case.

We have referred to the fact that many epidemics of pneumonia are not due to direct infection from another patient or to a traceable intermediate infection—indeed, the contrary is naturally much more frequently the case. In wide-spread epidemics, in which a great many cases occur over vast areas of country, we are obliged to believe that the cause is atmospheric infection, like that which seems usually to produce epidemics of influenza; and the source of infection in such instances is, with our present methods, usually undiscoverable. There are also on record numerous instances of localized epidemics, in which it is apparently quite clear that the infection has been atmospheric, coming from some untraceable source. An example of this is the epidemic at Ober Sitke described by v. Holwede and

Münnick. In this village, with a population of about 400 persons, many cases occurred within a short time, chiefly among the children, of whom there were about fifty. Within thirteen days fifteen of these children sickened with pneumonia. At the time of this epidemic, owing to the extremely inclement weather, most of the children in the village had been kept housed; for this reason, and because many of those who became ill lived in widely separated houses, between which there had been no intercourse, it seems impossible that there could have been any question of contagion or of local soil-infection and the like.

In another class of instances evil sanitary conditions have been found in areas in which there were local epidemics; and this fact has furnished presumptive evidence that the bad sanitation was responsible for the outbreak, although no direct connection of the source discovered with any primary case or cases could be demonstrated.

An example of this is seen in the epidemic mentioned by Winter, which occurred in a localized portion of the town of Kappelrodeck, and persisted from November, 1890, to February, 1891. The chief interest in this epidemic lies in the fact that it occurred in a thickly populated alley, whose inhabitants were extremely poor and lived in particularly bad hygienic surroundings. The alley lay at the foot of a steep granite hill, impermeable to moisture, upon which manure and other refuse were regularly spread. Typhoid epidemics were common also in this district; and it seemed probable that the epidemics of typhoid and perhaps the pneumonia epidemic could be referred to the situation of the alley in relation to the hill. There was certainly every opportunity for typhoid infection to have occurred through infection of the drinking-water from the refuse-laden hill.

Instances of a character intermediate between that last mentioned and direct contagion—*i.e.*, instances in which there was evidence of soil-infection, but in which it was fairly clear that the soil-infection had come from earlier cases—are on record, as, for example, that of Chrostowski and Jakowski. These authors describe an epidemic that involved six persons. It occurred in a bakery, and was apparently due to the fact that, on account of imperfect plumbing, a temporary closet with an open trench had for some time been in use in this house. It was subsequently learned that for years past isolated cases of pneumonia had been regularly received each year from this house in neighboring hospitals. The soil had probably become infected from the earlier cases; and when the trench was dug the organisms had reached the air directly and had thus caused the epidemic. The authors state that they made bacteriological examinations of the soil and animal inoculations, and demonstrated the presence of the Friedländer bacillus; and the same organism was shown in two of the cases by aspiration of the lung. A similar observation is that made at the Amberg prison, where there had been several severe epidemics of pneumonia, and where each year numerous cases of pneumonia appeared among the prisoners. The soil there also was shown to contain large numbers of the Friedländer bacillus. Whether this organism was the cause of the cases of pneumonia or not, there can be little doubt that there was a local infection that had produced the repeated outbreaks, and had likewise caused the undue number of cases each year.

We would mention also a similar and very suggestive observation that was made by Tamforde in the epidemic that he describes, the history of which is, in brief, as follows: A man sickened with pneumonia in September, 1901. He lived in a small house in very restricted circumstances. He expectorated on sand, and his wife regularly emptied this sputum-laden sand on the manure-heap. The man recovered, and soon afterward the manure was spread over the neighboring fields, which were at that time flooded and frozen over. Mild weather prevailed during December and the early part of January. During the latter part of January and the early part of February strong winds blew most of the time from the west and southwest, and during this period a definite epidemic developed, almost all the cases occurring in persons who lived in the vicinity of the infected fields, and practically exclusively in those living to the east of those fields—*i.e.*, in the direct path of the wind coming from the infected area. The previously mentioned man who

had apparently produced this epidemic himself fell ill again with pneumonia. The course of events in this instance is too impressive to need comment.

The point of chief importance that is demonstrated by the literature on epidemic pneumonia is one already known, but not sufficiently well recognized, viz., that while we are limited to general hygienic measures in controlling extensive atmospheric infection, local epidemics may often be stamped out by making a proper search for their cause; and when direct transmission is active in producing the disease, we can frequently stop its progress at once by instituting sufficiently active measures.

Pneumonia, however, does not usually tend to become epidemic, and demonstrable contagion certainly occurs with comparative rarity. The point that is at present of chief clinical interest is to determine, as far as possible, the reasons for the occasional greater epidemicity of the disease, and for its occasional tendency to produce contagion. An insufficient amount of study has been given to this point especially by clinicians. Netter, Riesell, and others refer to the fact that actual contagion seems to occur chiefly when the contact is intimate, and that the danger of contagion is considerable only in the cases of those who are in attendance upon pneumonia patients or occupy beds near them. This usually seems to be true, but not always, as contrary observations have been made. Contagion is also, of course, dependent to a considerable extent upon the presence of other infections, particularly influenza. It is well known that pneumonia becomes especially prevalent during influenza epidemics, and the literature also demonstrates that evidences of direct contagion from pneumonia cases have been noted with especial frequency at such times. The latter point was strikingly illustrated in the ward epidemic of Lancereaux and Besancon, which involved four ward patients, an attendant, and an externe. The six cases of ward infection, all of which were fatal, occurred within a few days of one another, and at a period when grippe was epidemic; and several of those who acquired the disease either had actual grippe or had been in attendance upon persons with that disease.

Another possibility that may be briefly mentioned is that suggested by Dieudonné, who notes that epidemic pneumonia has repeatedly been observed in human subjects at the same time that epidemic pneumonia has been prevalent among horses, and that many of those having the care of the sick animals have acquired the disease. It is wholly possible that pneumonia may occasionally be transmitted from horses or other animals to man.

Most important subjects of investigation, however, are those relating to the virulence of the organisms producing the disease, and to the viability of these organisms in different media and under various conditions. Owing to the older teaching of bacteriologists, the view is prevalent among clinicians that the pneumococcus rapidly loses its virulence and dies out in the sputum of pneumonia patients and in culture media. A series of investigations made within the last ten years have, however, shown that virulent pneumococci may at times persist for a considerable period in the sputum of convalescents from pneumonia (Bignami and Marchiafava, and others); and it has also been demonstrated that the organisms may long remain viable and virulent in preserved sputum (Foa and Bordoni-Uffreduzzi), and in their natural media—dust, earth, etc. (Germano). Bordoni-Uffreduzzi particularly tested the persistence of the virulence of the pneumococcus in sputum, collecting the sputum on linen and drying it, partly in diffuse daylight and partly in direct sunlight. As was to have been expected, the virulence persisted much longer when the sputum was not exposed to direct sunlight. Under such conditions it was marked even after forty-five days.

Germano carried out an important study concerning the viability of the pneumococcus in various natural media. He found that when mixed with dust, sand, and earth, the pneumococcus exhibits a varying degree of viability, depending to some extent upon the medium. One variety died rapidly, while another lived for as long as forty days in dust and sixty days in fine sand. When blood containing the latter diplococcus was mixed with sand, or when similar experiments were carried out with pus containing diplococci or with sputum containing these organisms, living, virulent diplococci were recovered as long

as 140 days afterward. Germano agrees with Kruse and Pansine in referring the discordant results of various previous investigators to differences in the variety of the organisms studied and in the media used. He believes that he has clearly demonstrated that a pneumococcus planted in its natural media may be found to be still living after nearly six months. It apparently retains its virulence even better when dry than when moist—a matter of evident importance in connection with air infection. Low temperatures are somewhat unfavorable to its growth, but not by any means absolutely so. Chantemesse made similar observations and attributes the greater resistance of the organism when in such media to the fact that it is then enclosed in an albuminous mass and is thus protected from absolute drying. Chantemesse refers to a hospital epidemic of pneumonia that was apparently controlled by taking care that no dust was stirred up, and that the floor was daily treated with disinfectants.

Germano observed that a variety of pneumococcus midway between a diplococcus and a streptococcus in its characteristics showed particularly marked persistence of viability, as well as of virulence. That organisms with such characteristics are usually virulent has been noted by others. Germano's organism was isolated from a case of pneumonia that occurred during a very severe epidemic of the disease. There was good reason, in consideration of his results in this instance, to believe that this special epidemic was due to the great resistance of this diplococcus, and to its dissemination through the air.

The observations mentioned are of great importance in relation to the hygiene of pneumonia cases, since they demonstrate very clearly the importance of infection of soil, dust, etc., in disseminating the disease. They also furnish experimental evidence of the fact, already made reasonably apparent by the clinical observations quoted, that a local source of infection may persist for a long time and needs to be looked for, and if found, destroyed; and they offer an explanation of the occasional persistent occurrence of pneumonia in hospital wards and in certain houses, and likewise give us a clearer conception of the possibilities of contagion. They demonstrate extremely forcibly, too, that we may apply to pneumonia Koch's recent emphatic statement concerning the prevention of typhoid fever—*i.e.*, that success depends chiefly upon rigid care in keeping the infection from spreading beyond those sick of the disease, not in devoting attention to the almost hopeless task of attempting to control an infection that is already scattered broadcast.

While we have no new and startling recommendations to make, we do believe that it is possible, without unduly exciting the laity, and without demanding an unreasonable amount of trouble and expense, to do more than is commonly undertaken to control the spread of the disease. There is no doubt that some instances of direct transmission could be prevented by educating the laity in general to understand that there is some danger of acquiring the disease from those ill of it. The fact that the danger is usually slight does not justify one in ignoring it; and it is not necessary to cause excitement in uttering a warning.

Reynolds goes so far as to recommend the use of measures of control similar to those adopted in cases of diphtheria. It seems to us that the strict isolation and disinfection practiced in that disease are at present scarcely feasible in pneumonia. Nevertheless, we consider it to be wholly practicable to maintain a fair degree of isolation, and to insist that those in ill health, especially if they have catarrhal processes of the respiratory tract, influenza, or similar conditions, shall not attend upon the patient or visit his room. The same rule should apply to all children, whether sick or well.

In hospital work, the ideal—but at present almost impracticable—procedure would undoubtedly be to isolate cases of pneumonia in a separate ward. As previously stated, however, the evidences of direct transmission seem to have been observed chiefly when the contact has been comparatively close; therefore, as Netter has suggested, it would perhaps be sufficient, and it would certainly be wise, in hospital wards to separate pneumonia cases as far as possible from other patients; and one should insist emphatically that they be well separated from persons with influenza, typhoid fever, and other depressing acute diseases.

It is customary among well trained phy-

sicians to have the sputum from pneumonia patients carefully collected and destroyed; but this custom is by no means general, and its importance may wisely be forced further upon the profession, as well as upon the laity. Even, however, when this measure is properly carried out it is unquestionably insufficient. Many investigations during the past few years have taught us that tubercle bacilli are scattered about freely by tuberculous patients in coughing, sneezing, etc.; and the same thing has been shown to occur with other bacteria, and undoubtedly occurs in pneumonia. Even more important than this is the fact that it is often absolutely impossible to collect sputum carefully, since the patient is frequently delirious or half-conscious, and the bedclothes and the floor are constantly being infected. The only satisfactory procedure is to have the bedclothes boiled, and the furniture and the floor thoroughly and frequently cleansed. If possible, in private practice, the room should at least be kept well aired and closed off from the rest of the house for some time after the disease is over before being reoccupied by the patient or used by any other person.

We strongly suspect that the future will see the custom of actually disinfecting after almost every bacterial disease. At the present time, if evidences of direct transmission of pneumonia appear in a house or in a hospital ward, it is certainly incumbent upon the attendant to undertake actual disinfection as soon as possible. If there is any evidence that a local source of infection is producing a local epidemic, or if an unusual number of cases have occurred from year to year in a local area, it is also incumbent upon the attending physician to attempt to discover the source of this infection and to make efforts to destroy it.

The control of the disease would also be largely aided if it were required that pneumonia be reported to health boards. It is evident that this will soon be done in some of our large cities, and it unquestionably should be done generally.

If measures such as those that we have sketched were carried out persistently in hospitals and in a considerable proportion of private cases, and if at the same time public interest in the use of general hygienic measures such as those recommended by Reynolds and other health officials were widely aroused, we do not believe that such pessimistic views as those that have recently been repeatedly expressed in regard to the influence of hygiene on pneumonia could long be maintained. Any control over the disease that we may be able to exercise will necessarily come slowly, but we certainly shall not acquire much control until we adopt more active and more detailed measures than those we now employ.

We have referred to the mildness of the infection in our cases. It is frequently stated by writers on pneumonia epidemics that the disease, when readily transmitted, runs a grave course, exhibiting many nervous symptoms, great prostration, often enlargement of the spleen, and other evidences of severe infection. This is usually true, but not constantly, for various authors have described epidemics in which mild cases were common. Spaet, for example, mentions a number of cases in which the crisis occurred by the fifth day; and Osthoff refers to a number of cases of abortive form, which lasted three days or less. In our two pneumonia cases the course was very mild and extremely limited, the longer case having had its crisis at the end of three and a half days, and the other having ended by crisis in a little less than three days. If the two other cases be admitted as pneumococcic infections, they must be considered to have been extremely mild, having produced practically no symptoms or discoverable signs of local disease. This fact is of interest, in that it demonstrates that a high degree of virulence is not an essential accompaniment of transmissibility; and it shows that transmission should not be suspected only when the cases are severe.

As we have also indicated, the observations are of interest in relation to the period of incubation. There are very few records that give any direct indication of the minimum length of the period of incubation—a fact that is natural, as it is impossible in most instances to state when the opportunity for infection has occurred. Our cases are of unusual importance in this regard, because they demonstrate with striking clearness the length of the period of incubation, and show that it must have been less than forty-eight hours in one

case, and only a little more than that length of time in the other. Hoffmann considers that the period of incubation is usually about nine days; but in an epidemic he observed cases in which the shortest incubation period was probably about three days, the maximum having probably been about twenty-five. Other authors—Waibell, for instance—have observed evidences that the period of incubation may be very brief. Its greatest possible length is, of course, exceedingly difficult to surmise.

The two cases that we have mentioned, in which pneumococci were discovered in the circulation without evidence of local lesion, deserve brief discussion. We have no doubt that the results of the cultures in these cases were entirely reliable, and see no reason to question the belief that these patients had pneumococci in the circulation. The blood was drawn with the utmost care as to asepsis, and if any accidental outside infection occurred, these were the only instances of it in a large series of blood cultures made by one of us (Ghriskey) in the same wards and at about the same time. The cultures were taken by adding 10 cubic centimeters of blood to 300 or 400 cubic centimeters of six-per-cent glycerin bouillon. Subcultures were also made on agar, glycerin agar, and hydrocele fluid. All the cultures were characteristic, and they leave no reason for doubting that the organisms were pneumococci.

These observations are not entirely without parallel. Prochaska has reported four cases in which there was no pneumonia and no evidence of other local pneumococcic infection, except bronchitis, and in one case hemorrhagic nephritis. One of these cases was fatal, and the absence of pneumonia was shown at autopsy. In all these cases pneumococci were found in the circulating blood. In two of the cases the bronchitis was slight. In all the cases, however, the symptoms were severe.

Recently, Baduel and Gargagno have described a more extensive and more pertinent observation, though the details are given with unsatisfactory brevity. The points of chief importance in their observation are as follows: eleven members of one household were demonstrated to have pneumococci in their circulation. Some of these patients were seriously ill, and the cultures were made for that reason; while in others the clinical symptoms were so slight (bronchitis, pharyngitis, etc.) that no especial attention would have been paid to these cases had it not been for the household epidemic of pneumococcic infection that was already known to be present. Because of this epidemic blood cultures were taken, and they showed pneumococci in the circulation in all the members of the household.

The profession has, chiefly through the work of Prochaska, been led to give up the idea that positive blood cultures of pneumococci necessarily mean a grave prognosis. It is certainly questionable, however, whether we have even yet recognized the frequency with which pneumococci and other organisms enter the circulation, and are recoverable by culture, particularly when there is very little general evidence of disease. Most clinicians hold to the view that positive blood cultures, in cases of supposed general septicemia, etc., are confirmatory of the diagnosis of what is termed septicemia, and also have extreme prognostic significance. It may be that this idea also will have to be greatly modified. It certainly will if the observations made by Bertelsmann are substantiated. This author has made a large series of blood cultures in cases of local surgical conditions, such as abscess, periostitis, etc. In forty-eight cases he found bacteria in the circulation; twenty of these patients died, after exhibiting the symptoms of general septicemia; but most of the twenty-eight others showed no evidence of septicemia, and in many instances there was nothing but what we are accustomed to consider definitely localized pyogenic infection. Such observations if confirmed must modify one's views concerning the clinical significance of positive blood cultures in various conditions; and they are also likely to have an interesting influence upon the question whether many infections, such as pneumonia, are first local and then general, or *vice versa*, as well as upon a number of other points of importance in the study of infection and immunity.

It is worthy of note that in our two cases that are now under special discussion pneumococci were discovered through

the purely accidental fact that we were at the time interested in making a series of cultures for typhoid bacilli, and thereby chanced to light upon the pneumococci; and both Prochaska's and, particularly, Baduel and Gargagno's cases were discovered solely through deliberate examination of a series of cases that seemed from the ordinary standpoint unlikely to yield pneumococci. This is of interest because bacteria are usually searched for in the circulation only when there is good reason to anticipate that they may be there.

It is important on both theoretical and practical grounds that we should gain more extensive and more exact knowledge as to the frequency with which, by modern methods of culture, bacteria of various kinds can be found in the circulation when clinical indications of their presence are absent, but especially when exposure to the possibility of infection has occurred. It is possible that bacteria may not infrequently enter the circulation in large numbers and be recoverable by culture, and then be rapidly killed off; hence special interest would attach to blood cultures taken soon after exposure. In both our cases the cultures happened to be taken within thirty-six hours of the first exposure.

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THE IMPORTANCE OF EPISTAXIS IN THE DIAGNOSIS OF NASAL DIPHTHERIA.

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That diphtheria, like smallpox, was known to the ancients is well authenticated knowledge; and several writers of antiquity described the symptomatology of its laryngeal development. Artæus and Galen rendered remarkably clear accounts of the "membranous tunic," etc., observed in this disease. In America, Josselyn observed and described diphtheria about the middle of the seventeenth century, and in 1659 three children in a family in Roxbury, Massachusetts, were fatally stricken by the malady of "bladders in the windpipe."[1] Despite the wonderfully accurate study of Samuel Bard[2] (1771), however, it was not until the nineteenth century that nasal diphtheria, even as an extension of the tonsillar or pharyngeal affection, seems to have attracted much attention.

In his scholarly book upon children's diseases, J. Forsythe Meigs[3] (1858) mentions the occasional extension of the diphtheritic deposit to the nasal mucous membrane, but says nothing of the epistaxis which may mark such an event. He does speak of the "expulsion of sanguinolent fluid" (from the mouth) in bad cases of putrid sore throat. At an earlier date, however, Francis Condie[4] (1847) gave the following classic account: "When the disease extends through the posterior nares to the mucous membrane of the nose, the patient is unable to respire through the nostrils; from these there takes place a discharge of serous, yellowish, and flocculent or bloody serum, often of a very fetid odor, and which produces more or less inflammation and excoriation of the external openings." Neither Meigs nor Condie nor other writers of their time, European nor American, seem to have

noted the occurrence of primary nasal diphtheria.

Even in the literature of modern times the question of epistaxis as an evidence of nasal diphtheria does not always receive the attention that it merits. Thus Tyson[5] does not mention nasal hemorrhage under this heading, neither does Rotch[6] (except in his description of malignant diphtheria) nor Taylor and Wells.[7] Oppenheim[8] says: "Occasionally in the thin mucopurulent discharge there may be traces of blood." Dillon Brown[9] yields similar testimony. Ashby and Wright[10] state that "there may be only a purulent discharge with blood;" and J. Lewis Smith[11] mentions that "hemorrhage sometimes occurs in nasal diphtheria." The statements of Holt,[12] Lennox Browne,[13] and Nothrup[14] are far more specific. Holt, speaking of catarrhal diphtheria, says: "There is a persistent and usually abundant nasal discharge, which is thin, irritating, and occasionally streaked with blood, and this may continue for weeks. In most of these cases constitutional symptoms are absent, etc." Again, dwelling upon severe diphtheria, "when the nose is first affected there is an abundant discharge of serum and mucus occasionally tinged with blood, which may continue several days before any membrane is visible." Later he states that "occasionally large nasal hemorrhages occur which may necessitate plugging the nares." The testimony of Browne and Nothrup need not be quoted at length, for it is quite identical with that of Holt. The former also adds: "The discharge is often tinged with blood, which symptom is occasionally intensified by sudden and profuse attacks of epistaxis." The latter authority contributes the following interesting and suggestive testimony: "It is not an unusual occurrence at the New York Foundling Hospital to have a child brought to the physician with a history of a foreign body in the nose. Here will be found a thick bloody discharge from one or both nostrils, swelling of the mucous membrane, and occasionally pseudomembrane to be seen in the nasal passage. In these cases a bacteriological examination serves to render a positive diagnosis, and the diphtheria bacillus is quite often found instead of the supposed foreign body."

Summarizing the views of the authorities who have rendered evidence we may practically revert to Condie's description —for obstruction to nasal breathing, the discharge of a serous or seropurulent fluid mixed with blood, the fetid odor of the discharge, and the excoriation of lip and nostrils furnish us with a symptom-complex most suggestive of nasal diphtheria. Add the cervical adenopathy, and the clinical picture is complete. Such local manifestations may occur in conjunction with marked systemic disturbance; they may mark the course of what is apparently a mild lacunar tonsillitis; or they may occur alone; but in any case diphtheria should not be excluded until an examination has been made with a nasal speculum and a good reflected light, and until a competent bacteriologist has furnished his report of a culture. The writer would insist upon one point, however, and that is that tingeing of the nasal discharge with blood, and even rather free bleeding, is not exceptional in nasal diphtheria, rather it is the rule. The text-books that give lists of the causes of epistaxis should accord diphtheria of the nose a separate and prominent place.

If this last view is a correct one the symptom nosebleed becomes one of great importance, for it may suggest the true nature of the malady in the very cases which are the greatest menace to the community, viz., the mild cases. The ideas of many medical men concerning the severity of nasal diphtheria are quite at variance, some thinking it the most severe form of the disease under consideration, others deeming it quite mild. As a matter of fact both views are correct. When the posterior nares are affected, rapid systemic poisoning usually ensues; these cases may indeed manifest profound toxemia before the cause of it is found or even suspicioned. Such a case the writer saw not long since with Dr. Luther C. Peter, the child affected receiving in all 28,000 units of antitoxin. On the other hand diphtheria starting in the anterior nares, and involving one or both nostrils, may exist for a considerable period of time, and yet the patient may evidence little or no constitutional disturbance. Lennox Browne succinctly states that "whilst cases of faucial diphtheria in which the exudation extends to the nares represent a very malignant type of the disease, on the other hand the deposit which sometimes though rarely

commences in the nares is at least occasionally of a quite subacute and non-toxic character." Rotch writes: "Diphtheria sometimes begins in the nose and spreads no further. In these cases the disease is usually of a mild type, but it is infectious. . . . These cases are probably a prolific source of infection to the community at large."

In the winter of 1893-4 the writer saw at St. Joseph's Hospital a boy of four years who had a purulent and bloody discharge from the left nostril. The secretion was offensive in character, had irritated the upper lip, and he displayed considerable tumefaction of the posterior cervical glands. The boy's temperature was 99°, he was pale, and had been failing in health. In examining him for the presence of a foreign body in that nostril, a piece of pseudomembrane was found and was readily removed with forceps. This was given to a pathologist for examination, but a report upon it was not received. The evidence of diphtheria in this case is of course incomplete, but in view of subsequent experiences there is little doubt in my mind that a culture would have yielded the Klebs-Loeffler bacillus.

Three years ago a boy of twelve years was brought to the Polyclinic Hospital suffering with a paraplegia unquestionably dependent upon peripheral nervous cause. In reply to a question concerning an attack of diphtheria, the lad's mother replied: "No, doctor; he never had diphtheria, but his little brother died of it about six weeks ago, and at the time he was sick this boy had the worst discharge from the nose that I have ever seen." Further questioning elicited the history of moderate nosebleed at the time he had the nasal discharge. As if to complete a chain of strong circumstantial evidence, the boy was already regaining the use of his legs.

The following three cases probably record the history of a mistake—one from which the writer greatly profited, for in future he will always culture such cases as I and II.

Case I.—Kenneth N., aged nine years, was taken ill April 15, 1902. His previous history is of no moment in this connection, and for brevity's sake is omitted. The onset of the present illness was quite sudden, being characterized by "chilly feelings," headache, pain in the back, and soreness of the arms. The writer saw him on the 16th, the day following, when his temperature was 101°, his pulse 100, and his respirations 28. The physical examination revealed only slight tonsillar swelling and redness accompanied by a blotchy (erythematous) redness of the soft palate and uvula. The lymph nodes at the angles of the jaw presented little swelling, but some tenderness to pressure. The posterior cervical glands were somewhat enlarged. The first sound of the heart was rather weak, and at the time there seemed to be both a presystolic thrill and a murmur.

The boy's mother and father had quite recently suffered attacks of epidemic influenza, and it was thought that the little patient had the same disease. On April 17 his throat was much better, and his temperature varied from 99° to 99.8°. He had on that day, however, two slight attacks of epistaxis. These were not repeated. On April 19 his throat was again quite normal in appearance, and his temperature was subnormal. He regained his former color and strength rather slowly, however, a result that one naturally expects in the wake of so depressing a disease as grippe.

Case II.—Dorothy N., aged twelve years; sister of Kenneth. She was taken ill in practically the same way as her brother, April 20, 1902, and her attack differed from his in two respects only, viz., she regained her strength and ambition much more slowly, and she had numerous attacks of moderate epistaxis. Indeed, I treated her nose with adrenalin solution and antipyrin sprays until May 7. This child, unlike her brother, had been subject to nosebleed in former years (probably caused by a small amount of adenoid tissue).

Neither of these children displayed the smallest particle of visible membrane, and in Dorothy's case I used a nasal speculum.

Case III.—Caroline N., aged four years; sister of the above. Became suddenly ill at noon, May 10, 1902, when she had a distinct chill, complained of headache, and was found to have fever. I saw her at 3.30 P.M. on the same day.

April 10, 1902. The patient is a splendidly nourished child. Her temperature is 102.4°, her pulse 130, and her respirations 30. Her face is pale and her expression

dull, her appearance suggesting an overpowering with some systemic poison. The pupils are equal, quite small, and respond actively to light. There seems to be some slight interference with nasal breathing. Her tongue is clean and moist. There is no complaint of sore throat, and examination reveals nothing but a hyperemic area upon the right tonsil, about one-quarter of an inch in diameter. Her lymph nodes are not swollen in any situation, nor does the examination of the thorax and abdomen reveal anything of interest.

May 11. She is no better; A.M. temperature 103°, P.M. temperature 103.4°. The nervous symptoms are more marked, the child twitching and starting in her sleep, and appearing stupefied in her waking moments. In the morning the right tonsil presented the typical picture of lacunar tonsillitis, but the exudate was not removed by a justifiable amount of force. In the afternoon the left tonsil was becoming involved in a similar process. The throat was cultured.

May 12. The child is unquestionably much worse. She seems in a stupor most of the time, and is quite hard to arouse. She does not take her nourishment well. Her temperature is 103°, and her pulse, which is thready, is 140. The respirations are somewhat stertorous. The face is blanched, and altogether it is quite apparent that she is a dangerously ill child. There is grayish membrane upon both tonsils, but it is still quite patchy. There is also more tonsillar swelling than is usual in diphtheria. The typical zone of hyperemia extends beyond the borders of the membrane, however. It being Sunday a report from the bacteriologist could not be obtained. Antitoxin (concentrated), 2000 units, was injected at 1.30 P.M.; at 7 P.M., though concentrated serum had been used, she evidenced the type of reaction to antitoxin so frequently observed in the early days of this treatment. The temperature was 104.4°, but her face was flushed and the pulse full and bounding. At 11 P.M. she was sleeping quietly and naturally. The temperature per rectum was 101°, and the pulse strong.

May 13. A positive report was obtained from the Bureau of Health. Morning temperature 100.4°, evening 99°. The membranous patches exhibit curling at the edges in a number of situations.

May 14. The throat is free from visible membrane. The temperature is subnormal, and the child is active and lively, resenting her enforced stay in bed. She has a ravenous appetite.

May 15. To my surprise a small patch of membrane was noted upon the left surface of the uvula. Though it seemed improbable, because her throat was so easy to inspect, the conclusion was reached that this had escaped attention in previous examinations. Her temperature was normal and her activity had reached the uncontrollable stage. That evening the mother 'phoned me that the child's temperature had risen to 101.4°, though she attributed this to nervous causes, and requested me not to call until morning.

May 16. Thick white membrane (emplastered) is observed upon the left half of the uvula, and it is surrounded by the typical zone of redness. Her temperature is 102°. Antitoxin (concentrated), 2000 units, was injected at 11 A.M. By evening the temperature had fallen to the normal point, and never rose again.

Her convalescence was slow so far as regaining her former weight was concerned, but was otherwise progressive and uneventful. The throat was germ-free May 24, 1902.

This child did not attend kindergarten, nor had she been exposed to any known infections outside of her own home. The family had recently moved into a large new house, with hardwood floors, and modern sanitary plumbing. Though the matter must remain forever unanswered, the writer feels morally certain that the disease had been conveyed from the school to her by her brother or sister, and that both of the last mentioned had had the catarrhal form of the disease.

To diverge from the major subject, Case III was wonderfully instructive from the standpoint of treatment. A desperately ill child responded in the course of a few hours to antitoxin, remained quite well for two days, suffered a relapse, and again showed prompt improvement when antitoxin was injected the second time. Such a case is far more valuable than are some statistics in demonstrating, if one need demonstrate at the present day, the specific value of Behring's great discovery. Incidentally it furnishes a powerful argument against the use of small repeated doses of

antitoxin, as recommended by high authority. The child responded to the first dose, and for some time after it there was no indication that more was needed. Yet she relapsed in three days.

The etiologic relationship between the following cases (IV and V) admits of no doubt:

CASE IV.—Emanuel K., aged six years. The writer saw the patient for the first time on October 7, 1903, and elicited the following history of the existing illness: Just one week before, while at school, the patient had a slight attack of epistaxis. This was attributed to an injury to the nose sustained a few days before. The following day nosebleed occurred several times. On the next day, Friday, October 2, he had some fever when he returned from school, and epistaxis was continuing at intervals. He was kept in the house on Saturday and Sunday, but returned to school on Monday and continued in attendance until Wednesday, October 7, the day that I saw him. His nose had been "stopped up" since he was taken ill, and he had snored in his sleep. In other words, he had been sick for just one week, and had attended school for five days. That afternoon (Wednesday) he had been taken to St. Mary's Hospital in order that the cause of the continuing nasal hemorrhages might be ascertained. The physician in charge of the nose and throat dispensary told the mother that the disease looked like diphtheria, and he made a culture from the boy's throat.

Present state: The boy is pale and slender, and his expression is dull. His lip is not excoriated, nor are the external nasal orifices. There is no marked odor to the breath, though the mother states that there has been. Just within the right nostril upon the septum is a small superficial ulcer, and a similar one, slightly larger in size, is seen just posterior to it. About one inch within the nostril is seen some clotted blood, and just back of that what appears to be a piece of loose white membrane. In view of the recent nosebleed no attempt was made to remove the latter. The tongue is clean and pale, and the tonsils are not enlarged. Indeed, the whole throat is quite pale. The cervical adenopathy is marked, and the superior glands of the posterior cervical chain are very tender. His temperature is 100.4°, his pulse 120, somewhat weak, and displaying considerable irregularity. His knee-jerks cannot be obtained.

His case was reported to the Bureau of Health as a probable case of nasal diphtheria, and a request was made for immunization of the other children in the event that the culture yielded a positive result. [NOTE: This first culture must have shown negative findings, for I heard nothing further from the Bureau until the second culture, taken from the right nostril, was sent in. The immunization was not carried out.]

The boy was isolated, a strict quarantine was initiated, and his father was directed to secure 4000 units of antitoxin. Through some mistake he obtained but 1500 units, and though I injected this but little result was expected from it.

Oct. 8, 1903. The boy's temperature is normal, but his nose still bleeds freely.

Oct. 10, 1903. A culture tube inoculated from the secretions of the right nostril was sent to the Bureau of Health. (This was reported upon positively two days later.)

The further history need not be recorded at length. The pulse characteristics (rapidity, weakness, and irregularity) obtained for nearly a fortnight, but he had no more fever. He had a splendid appetite and gained in flesh despite enforced rest in bed. Until October 23 epistaxis was of daily occurrence, two attacks usually being noted in the morning.

The boy was treated with hydrargyrum chloridum corrosivum in combination with tincture of ferric chloride, and was given strychnine in liberal dosage. His nose was sprayed every three hours with

Acid. boric., q. s. ad ft. sat. sol.;
Hydrogen. peroxid., f℥ijss;
Glycerin., f℥ss;
Aq. destillat., q. s. ad ft. f℥iij.
Misce et solve.

His nose did not become germ-free until October 22, then I believe as a result of the following procedure: Both nostrils were thoroughly sprayed with the solution just mentioned. The nares were then swabbed as thoroughly as possible with eucaine B (one per cent) and solution of adrenalin chloride (1:10,000). The visible nasal mucous membrane which could be reached was next swabbed with argyrol (10 per cent). The nosebleed occurred but once

after this treatment was carried out, and was then but slight. The treatment was pursued daily until October 26.

CASE V.—John K., brother of the above, aged four years. Taken ill the evening of October 9, about forty-eight hours after the isolation of his brother. The following morning, October 10, he was found to have high fever (104°) and a pulse of 124. He shows an inclination to sleep most of the time, though his sleep is restless. He presents the facies and thoracic deformity of adenoids. His tonsils are little swollen, but they and the posterior pharyngeal wall are studded with gray membranous patches. The lymph nodes at the angles of his jaw are much swollen. (A culture made from his throat was reported upon positively two days later, Sunday intervening.) He was injected with 3000 units of the city antitoxin at 5 P.M.

The following morning his temperature was 101.2°, and he seemed much brighter. His sleep was still much disturbed, and his breathing in sleep noisy. The glands at the angle of the jaw were greatly swollen. The throat showed little change. His evening temperature rose to 102°, but he seemed so much better in all other respects that antitoxin was not given. The following day the A.M. temperature was 100° and the evening 98.8°. The throat was free from visible membrane on the evening of October 12, and germ-free October 17. For more than a week he displayed bradycardia, once as low a pulse rate as 58, and on one occasion he became partially unconscious and cyanosed. (His mother promptly administered brandy.)

The writer has never seen death from epistaxis in nasal diphtheria. He is much indebted to his friend, Dr. Frank C. Hammond, for the brief notes of the following cases:

CASE VI.—E. B., male, aged four years and nine months. On the evening of October 11, 1903, the patient complained of a little sore throat. The following morning this seemed worse, and Dr. Hammond was called. The left tonsil was found swollen and covered with a greenish membrane. The following day, October 13, a positive diagnosis of diphtheria was made, for the uvula and opposite tonsil were uniformly plastered with membrane. The cervical glands were much swollen. On the third day of the disease the diphtheritic process extended into both nares, and during the evening of the same day occasional epistaxis was observed. On the fourth day several severe hemorrhages occurred, and during the intervals there was a more or less continuous oozing of blood. During the night of the fourth day the epistaxis was still more severe, a slow oozing persisting between the spells of violent hemorrhage. All of the hemorrhages took place from the right nostril. The child died during the early hours of the fifth day, completely exsanguinated. At the time of death there was enormous enlargement of the cervical lymph nodes. The temperature range was low, 101° being the highest temperature noted. The face was blanched at the beginning, and continued so throughout the disease. There was a slight fetor to the breath, but no very marked odor. A digital examination failed to reveal the presence of adenoids. Beginning that treatment on the second day, the child was given in all 9000 units of antitoxin. Local treatment, including first styptics, then plugging with cotton, then with gauze, then with gauze saturated with adrenalin solution, was unavailing.

It was thought that the little fellow had contracted the disease from a child living next door who had died from follicular tonsillitis (?).

The evening that the writer completed this paper, October 10, he was asked by Dr. S. M. Vernon to see the following case:

CASE VII.—Helen ——, a splendidly nourished child, aged four years. The patient had been taken ill at 2 P.M. on the preceding day, just thirty-three hours before I saw her. At first she complained of headache and of slight sore throat. When Dr. Vernon saw her the following morning she presented the typical picture of a mild lacunar tonsillitis. Her temperature, however, was low. During the day she seemed quite stupid, sleeping most of the time, and she breathed noisily through her open mouth. In the evening Dr. Vernon was again called, because she had had several spells of severe nosebleed.

It was impossible to examine the child because she was nervous, and when she struggled or cried her nose bled furiously. The blood simply gushed from both nos-

trils. Her mouth was widely open and her respirations were stertorous. She had not the physical stigmata of adenoids. There was already much swelling of the glands at the angles of the jaw. Her temperature could not be taken in the mouth or rectum, and as her skin was very moist the axillary record, 100.4°, was scarcely to be relied upon. The pulse was strong, but the rate variable, ranging from 144 to 168.

Bearing in mind the case of Dr. Hammond the writer advised the administration of a large initial dose of antitoxin, 4000 units. This was injected as soon as procured.

Dr. Vernon reported to me by telephone the following day, stating that the child was much better and that there had been no return of the epistaxis.

The cause or causes of epistaxis in nasal diphtheria have been to the writer a problem of interest. The number of cases cited here is too small to furnish a basis for positive conclusions, but taken in conjunction with the evidence of authority this study does seem to justify the tentative acceptance of the following views:

1. The slight staining of the nasal discharge with blood, either in subacute or severe nasal diphtheria, would seem to be due to the *severity* of the local disease process. The nasal mucous membrane, highly vascular as it is, bleeds upon very slight provocation.

2. In subacute nasal diphtheria, as in the case of Emanuel K., moderate epistaxis may be dependent upon the *depth* of the inflammatory process. Ulcers were observed upon his nasal septum.

3. The slight or moderate hemorrhages which may occur in more acute cases are probably dependent upon the toxemia. Of course the idiosyncrasy of the individuals plays a part here, just as it does in other infectious diseases (typhoid, scarlet fever, etc.) which may be accompanied by epistaxis.

4. The alarming or even fatal nasal hemorrhages observed in severe diphtheria are always dependent upon the profound toxemia.

Upon *a priori* grounds one would expect to find adenoids playing an important rôle in this connection, but the writer must refrain from expressing an opinion on this phase of the subject, because of the negative value, concerning adenoids, of the testimony here offered.

In a brief concluding summary one may safely assert that:

1. Staining of the nasal discharge with blood is quite commonly seen in nasal diphtheria, and epistaxis of moderate severity is not infrequently observed.

2. Nosebleed is a symptom of much diagnostic value, for it may suggest the possibility of nasal diphtheria in any case, but particularly in the dangerous (to the community) mild case. Among the causes of epistaxis, diphtheria of the nose should be accorded a separate and prominent place.

3. In malignant, mixed, or streptodiphtheria (Northrup) of the nose, epistaxis may be most alarming and may even be the immediate cause of the fatal termination.

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THE CURATIVE EFFECT OF ERYSIPELAS UPON ATROPHIC RHINITIS.[1]

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Atrophic rhinitis, although in the ordinary sense not a rare disease, is seldom completely cured, the usual result of treatment being either slight improvement or no change at all. Complete cures from

[1]Read at the Philadelphia County Medical Society, Dec. 23, 1903.

local and general treatment, while they may and have occasionally been obtained, must be exceptional.

A. D. H., male, aged thirty-seven years, married, no children. Patient is very stout and plethoric, uses alcohol and tobacco moderately, is very irregular in his habits, especially as to diet and exercise. He denies ever having syphilis, but confesses having had gonorrhea once. Since being married has been a sexual neurasthenic. Family history is entirely negative. For some time has been suffering from nasal catarrh, but since September, 1902, has had a yellowish discharge from his nose, in addition to numerous dark-brown crusts, both of which were somewhat fetid. He often had a sensation of closure of the nose.

He had been treated by several physicians with absolutely no improvement, and on January 6, 1903, came under my care. Examination at this time showed an atrophic rhinitis. His nares were spacious, the mucous membrane was pale and covered with dark-brown crusts; one large crust, that had become partially detached, extended directly across the nares, obstructing it. This and similar occurrences possibly were the cause of the sensation of closure experienced by the patient. On both sides of the septum anteriorly there was an ulcer of moderate size. A mild degree of ozena was present, in addition to a purulent discharge, which caused the patient to be constantly snuffing and hawking. The sinuses were not involved. The pharynx showed an old chronic catarrhal condition.

The ulcers were cauterized with silver nitrate, the nares well cleaned with the ordinary alkaline washes, and ichthyol 25 per cent was applied. Urine was acid, 1035, contained a trace of albumin, no sugar. Microscopic: urates but no casts, no blood.

Treatment was continued until February 23, with very little improvement. On that day I was called to see the patient, as he had had a chill. His temperature was 104° F., tongue coated, and his nose was a trifle red and swollen. The following day the redness and swelling had increased and spread to both cheeks, giving a butterfly appearance, and a diagnosis of erysipelas was made. Tincture of the chloride of iron, 15 drops every three hours, was ordered, and ichthyol was applied locally. On the fifth day the left cheek began to clear up, but on the right side the erysipelas was spreading toward the ear. The following day the entire right ear was involved, the swelling causing a closure of the external auditory meatus. The tension became very great and caused pain, and fluctuation was present over the tragus. From this time on there was gradual decrease of all symptoms, and in a few days the patient was well. During this illness he remarked to me, on several occasions, that his nose appeared much relieved, and asked me if it was possible that the erysipelas could have had any curative effect on his nasal condition.

The ozena entirely disappeared, the number and size of the crusts diminished, and the ulcers were entirely healed. The mucous membrane, in fair-sized areas, had regained its normal color and appearance.

Treatment for the atrophic rhinitis was resumed on the same lines as before and continued until March 12, 1903, when he had a recurrence of the erysipelas, beginning at the internal canthus of the right eye. This attack was much milder than the first, and was followed by a cessation of the nasal discharge and disappearance of the crusts. The mucous membrane had regained its normal condition save for a few patches.

On March 30 he had a third attack of erysipelas, and when I saw him his nose and right cheek were already involved. This attack was more severe than the first; he had had a chill and was running a temperature of 105° F. The right ear was again attacked.

On April 12 no traces of the atrophic rhinitis remained, but there had been overreaction, the mucous membrane of the nose was red and congested, and there was hypertrophy of the right middle and lower turbinates. The throat still showed evidences of the catarrhal condition, as mentioned before. The present conditions were treated in the usual way, with improvement.

The patient next came under my observation August 28, when he had a small infected wound on his nose, resulting from the opening of a pustule with a needle. This had been very stubborn in healing and is still under treatment (October 21).

A specialist recently saw the case and diagnosed the condition as specific, and put the patient on potassium iodide. It must be borne in mind that during the time he had the atrophic rhinitis he had absolutely had no specific treatment, and if the atrophic condition depended on syphilis, it only adds interest to this case.

Within the last few months his nose has been examined several times and not a vestige of the original condition was found, but in its place there has been present the condition described before—*i.e.*, hypertrophy of the turbinates, etc.

The question will be asked: What was the origin of the primary infection with erysipelas, and why did the patient have two subsequent attacks in succession?

The object of this paper is not merely to report a case of atrophic rhinitis that had been cured, but to put on record a case in which one disease was cured by the intercurrence of another. From the serotherapeutical standpoint this case is of special interest, since erysipelas was one of the diseases concerned. As previously stated, the possible presence of syphilis only adds interest and makes the cure, if the atrophic rhinitis was due to it, all the more remarkable, in the absence of the use of the accepted antisyphilitic remedies. It might be here stated that the patient showed no other symptoms or physical signs of specific disease, with the possible exception of the partial loss of sexual power.

Just why the erysipelas had the effect it did on the atrophic rhinitis I will not attempt to explain, but will merely mention two factors that suggest themselves: (1) The pathology of the two diseases is diametrically opposite: in the one there is anemia and atrophy, in the other hyperemia and swelling. (2) The action of the bacterial products of erysipelas on certain other diseases, as has been demonstrated.

My attention was recently called to the effect of erysipelas on atrophic rhinitis by a paper by Dr. L. S. Somers (*Medical News*, Aug. 29, 1903), who reported a case. Including his case there are, I believe, but three such cases on record, mine making the fourth.

As the scant literature on this condition has been considered in detail in the above mentioned paper, I will not again review it.

VENESECTION AS A THERAPEUTIC MEASURE IN LOBAR PNEUMONIA.

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Quite a good deal has been said in the journals recently of venesection in the treatment of pneumonia. We are wisely, I think, returning to some of the therapeutics of our grandfathers. They did venesection, as we do many things to-day, empirically. In our time of progressive science, by the lights of pathology and bacteriology, from recent studies of toxins and antitoxins, we do venesection in pneumonia scientifically.

When shall we do venesection, and how does it relieve our patients? Some of our more recent text-books say that if we bleed the patient, it should be done within the first forty-eight hours of the disease. I see no reason for venesection at any stated time from the invasion of the disease. A pneumonic patient does not at any time have too much blood, and many of them do not need bleeding at all.

Our pneumonic patients do not die from lack of lung capacity because of hepatization of part of one or both lungs, or from failure of overworked heart in forcing the blood through consolidated lung, but they die from toxemia.

Our treatment should be directed toward assisting the organism to eliminate the toxin, and in producing antitoxin sufficiently to neutralize the toxin produced by the infection. Venesection during the stage of invasion would certainly not help along these lines. The venesection should be done when the patient is being overcome by the toxin, as shown by the rapid and weak state of heart, the rapid, shallow respiration, the anxious face, and the cyanosis, regardless of whether it is the second or eighth day from onset. Simultaneously with the bleeding, we should introduce into the subcutaneous cellular tissues normal saline solution of volume equal to or greater than the amount of blood extracted. By this means you eliminate part of the toxin and dilute that which remains in the organism. The blood-making organs and the nervous system will react, as shown by improvement in respiration and circulation and better facial expression.

This will save a few pneumonic cases which otherwise will end fatally.

The Therapeutic Gazette

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Leading Articles.

THE HISTORY AND THE VALUE OF THE REST CURE.

It has now become part of our general knowledge that the "rest cure," originally devised by Dr. S. Weir Mitchell, is an exceedingly valuable measure for the purpose of restoring to health those who from various causes are sufferers from exhaustion of the nervous system. At the twentieth anniversary meeting of the Philadelphia Neurological Society, held on January 26, 1904, Dr. S. Weir Mitchell read a paper on the mental processes by which he devised the rest cure, and so put on record for the first time in a formal manner the early history of this valuable procedure. He told the members of the Society that his attention was first called to nervous exhaustion as a separate condition from organic disease when, during the Civil War, Dr. Keen, Dr. Morehouse, and himself studied together the diseases and functional disorders of soldiers who were sent from the front to the great army hospitals of that day. He was impressed at this time by the physical condition of certain of the men who had fallen by the wayside during long and exhaustive marches and when they were suffering from intense nervous excitement, and he not infrequently watched for months these nervous wrecks, which in some instances recovered sufficiently under rest in bed and forced feeding to be able to return to the front, and once more take their place in the line as able soldiers. Again, he had on one occasion the opportunity of observing the effects of a three-months' rest cure enforced upon a case of locomotor ataxia in which a fracture of the thigh had followed a fall. The patient greatly improved in many ways, but on being allowed to leave his bed fell a second time, and fractured the opposite thigh, so that another rest cure of three months more was required. The patient truly "entertained an angel unawares," for at the end of the six months he was much better than before his accidents. Still later there came under his care an overworked woman much emaciated, with complete nervous exhaustion, and disorder of almost every function in her body as a result. She had been to almost every physician of note in this country and Europe without benefit, and remained under his care for a considerable period of time without improving. Remembering the effects of rest, he attempted rest in bed for this patient, but soon found that the results were disastrous in that she was unable to digest her food, and usually vomited all she took. It then occurred to him that if he could provide passive muscular exercises by means of massage and electricity the nervous strength might be saved and nutrition and digestion improved. The result was remarkable.

Although his plan of treatment at first was subjected to adverse criticism, it is now, as is well known, a recognized therapeutic procedure all over the world.

A good motto for every physician is "never to use a drug when a remedial measure other than a drug will do equally well." It is a mistake in many instances to attempt to stimulate an exhausted nervous system by drugs when a rest cure is really needed. On the other hand, it must be remembered that a rest cure is useless unless it is carried out sufficiently long and with sufficient detail to permit it to exercise all its good influences.

THE VALUE OF RELIABLE DRUGS.

At the risk of being reiterative we once more desire to call the attention of our readers to the necessity of employing remedies which are pure and which are surely possessed of physiological and medicinal activity. The physician is the only person who uses drugs at the bedside, and who has impressed upon him day by day the fact that if these drugs are not in every sense first-class, the health or life of his patients may be lost. In many instances the wholesale and retail dealer in drugs, while he knows, in an abstract way, that he is handling substances designed to treat disease, does not have it borne in upon him almost every hour that variations in the purity of the substances which he sells may produce variations as to life or death in those who ultimately purchase his goods.

We have reason to believe that much of the medicine which is placed upon the market is far from possessing the activities which we have a right to expect. In some instances these activities have been destroyed by exposure to dampness or to heat; in others they may have been dissipated by prolonged storage; in still others they may have been injured by worms or insects; and yet again, the soil in which medicinal drugs have been grown may have completely altered the physiological activity and power of the drug. In the case of chemical substances, used as drugs, we all know that they are frequently contaminated by substances which they should not contain; and while, on the one hand, many of these contaminating substances are of chemical rather than clinical importance, on the other hand, in some instances at least, their presence produces an evil influence.

Even if the person who employs a drug by the bedside is so lacking in moral fiber that he fails to recognize the grave responsibility which rests upon him, at least he should be possessed of sufficient business foresight to feel that the employment of feeble or impure drugs is, to speak lightly, a short-sighted policy, for under these circumstances he may have the discredit of losing the patient instead of the credit of saving him; and what is equally harmful, he may have his own professional judgment as to the value of certain standard remedies so warped that he will conclude not to employ a certain drug in another case when the fault really lies in the substance which he has used being incompetent to do the work expected of it because it is weak or impure. Again and again we have known of instances in which the laity have deliberately taken prescriptions to "cut-rate druggists" in order to save five or ten cents, failing to recognize the fact that of all druggists that druggist was in business chiefly for himself, and certainly not for the purpose of making a financial loss. If, therefore, the patient saves, so must the druggist save by buying the cheapest drugs. The difference between first-class and second-class remedies in cost is infinitesimal when the cost of each individual dose is considered, but the variation in the result to the patient and physician may be very great. A reliable physiologically tested remedy may make a reputation and an inert drug may destroy it.

MILK AND INFANT FEEDING.

It is not the purpose of this editorial to go over the various facts which have been brought forward during the past two decades concerning the modification of milk for the feeding of infants who cannot be breast-fed. The literature of this subject has now reached proportions which are truly magnificent, and while many of the contributions have been almost epoch-marking in their character, an immense amount of theoretical discussion has, we think, brought little actual improvement in the nutrition of bottle-fed babies.

Scarcely any physician who has kept abreast of the literature of his profession does not know something of the needful modifications for the purpose of making cow's milk digestible for infants. In some instances the physician is so careful that he insists upon an analysis of the milk, and then upon, what might be called, chemical accuracy in its modification. Other physicians of large clinical experience are content to utilize the scientific facts which have been adduced as to the methods of modification in what might be called an approximate method, and it is probable that the vast majority of physicians in active practice approximate the quantities of

cream, milk, sugar of milk, and other ingredients of the baby's bottle rather than insist upon an accurate, unvarying mixture. It cannot be denied that certain cases do best when the greatest possible care is utilized in the modification of the food, but the vast majority of children do well on the approximately adjusted bottles.

A very much more important question for the consideration of the active practitioner is that which deals with the purity of the milk which is given to his patient. Even in country districts there can be no doubt that much of the milk is contaminated by microörganisms and by dirt, for the existence of which there is no excuse. In cities the opportunities for contamination in the process of transportation and storing of the milk and because of the foul condition of the atmosphere are exceedingly great, and in the poorer districts of great cities it is a well known fact that the mortality among young children who are bottle-fed is truly fearful to contemplate. We have read with great interest in the *Medical News* a very useful laboratory and clinical report made by Park and Holt in regard to the milk supply of certain portions of New York City, the effect of Pasteurization and sterilization upon such milk, and the consideration of the relationship between illness and death and the employment of milk containing a certain number of bacteria. They found that certain samples of milk contained exceedingly large numbers of bacteria. Quite a number of children were taking milk which contained as high as 350,000,000 bacteria to the cubic centimeter (15 drops), and yet many of these children manifested no gastrointestinal disturbances. It is a noteworthy fact, however, that these children were over three years of age.

Another very interesting fact elicited by their research is that during cool weather neither the mortality nor the health of the infants who were studied was appreciably affected by the kind of milk or by the number of bacteria which it contained. Far fewer microörganisms were found in the milk during the winter than during the summer. In hot weather, on the other hand, when the resistance of the children was lowered, the kind of milk taken greatly influenced the amount of illness and death, and it was found that those who took condensed milk and cheap store milk did the worst, and those who received breast milk, pure bottled milk, and modified milk did the best. It was also found that the effect of bacteria was very marked when the milk was taken without previous heating, and only slight when the milk was heated. After the first two months of life these observers found that infants were less and less affected by the bacteria in milk derived from healthy cattle. They strongly advise that milk used for infants should be delivered in sealed bottles, and that only the purest milk should be taken raw, especially in summer; and finally, it is noteworthy that they find that close percentage modification of milk, although desirable in difficult cases, is not necessary to obtain excellent results with the great majority of infants, and that the adjustment of a healthy infant to its food is usually soon secured.

THE VALUE OF MUSK.

Although it is not many years since certain practitioners were wont to employ musk quite constantly in the treatment of disease, there can be no doubt that at the present time it is rarely used, and that the younger generation of practitioners has never seen it employed. Several causes are responsible for this decrease in its popularity. In the first place, it is exceedingly difficult to obtain pure musk, and as adulterated musk is often substituted, the therapeutic results which have followed its employment have been disappointing. Again, the price of pure musk is so great that some hesitancy is felt in ordering a drug of uncertain therapeutic value when the cost of the substance ranges as high as twenty-five dollars a drachm, particularly when the dose is five grains every two hours, according to Dr. Crookshank, of London. Again, there are, so far as we know, no pharmacological studies which indicate that musk has any distinct physiological action in the ordinary sense of that word, although the older physicians were in the habit of considering it a valuable diffusible stimulant in cases of nervous and circulatory depression.

Our attention has once more been called to this drug by Dr. Crookshank's paper in

the *West London Medical Journal* for January, 1904, in which he tells us of a case of a young man of nineteen, who was suffering from severe toxemia in scarlet fever, from intense insomnia, mental agitation, and finally, from a raging delirium which continued until the fifth day, when the maniacal excitement gave way to muttering delirium, and the urine and feces were passed involuntarily. Cheyne-Stokes respirations came on, and every form of stimulant was used without avail. At this time some pure musk was obtained and given in the dose of four to six grains every two hours, when to the astonishment of every one the patient began to rapidly improve, and at the end of forty-eight hours was obviously better. Recovery finally took place.

THE AFTER-TREATMENT OF PATIENTS SUFFERING FROM SURGICAL TUBERCULOSIS.

That the patient suffering from a local, accessible, and removable tuberculous infection should, after radical operative treatment, be subject to a course designed to protect him from a tuberculous outbreak elsewhere is a proposition readily accepted when formulated, but one often neglected because the surgeon's attention is concentrated upon wound healing that the article by Knopf (*Annals of Gynecology and Pediatry*, No. 12, 1903), on this subject, is both timely and appropriate. It is true perhaps that the major factor in a permanent cure is a complete removal of the focus of infection. The importance of this is shown by the after-course of cases of bone and joint tuberculosis, which, apparently healing under conservative treatment, break out afresh, consequent on insignificant trauma years later. The tubercle bacilli or their spores have an extraordinary power of latent vitality, and the person who has once exhibited a local infection, particularly if this has not been removed, should be regarded as being in the same danger, and should be subject to a treatment similar to that applicable to cases of pulmonary involvement.

Since we have no specific medication against tuberculosis, our main dependence in combating it must be placed in measures which have for their end the increasing of cell vitality and resistance. These measures imply an abundance of sunlight and fresh air, exercise, either passive or active, hydrotherapy, and particularly, because tuberculosis is especially characterized by rapid tissue destruction, easily digested, highly nutritious food in as great quantity as can be taken by the patient.

Thus, after such an operation as celiotomy for the relief of tuberculous peritonitis, the patient, well protected against draughts or colds, should be put in the sunlight, as soon as the effects of ether and the immediate shock of operation have passed off. If this be impracticable, the room should be well ventilated and kept at a temperature of about 60° F. Bathing and light massage should be instituted from the first, sparing of course the abdomen, and as soon as the bowels have been opened and the stomach is retentive forced feeding should be begun, with peptonoids, expressed beef juice, eggs, milk, cream, supplementing the ordinary postoperative dietary. Such patients should be put in a wheel-chair within the week, and, sheltered against wind and the direct rays of the sun on their heads, should be treated in the open through the entire day. In addition, Knopf strongly urges the importance of respiratory exercises, pointing out that while 500 cubic centimeters represents the tidal air, the amount that can be inspired after an ordinary breathing in is three times this much, and the amount that can be expired after an ordinary breathing out is nearly as great. Deep inspiration and forced expiration, in addition to changing the residual air and providing a useful form of exercise, bring an added amount of oxygen to the blood and thus increase metabolism. As convalescence becomes definitely established, in addition to a more vigorous and general massage and more frequently repeated deep breathings, the patient is given a course of exercise adapted to his strength.

Finally, on restoration to health patients who have suffered from surgical tuberculosis should be warned that they are susceptible to a recurrent infection, either local or general, and should, where possible, select a climate and vocation best suited to keep them in perfect health. It is advisable for such patients to per-

sistently practice hypernutrition, and to guard against trauma, grippe, or other causes of local or general depressed vitality, which are frequently the forerunners of a further outbreak of tuberculosis. In regard to prescribing exercises for tuberculous patients, Knopf justly insists that when fever is present the major indication, aside from nutrition, is rest.

HYPERTROPHIC STENOSIS OF THE PYLORUS IN INFANTS.

This affection, of obscure etiology, dependent upon a true overgrowth of the pyloric muscle, is characterized by symptoms so constant as to make its recognition possible and its treatment by surgical measures not only justifiable, but in cases not yielding to dietetic and medicinal treatment, obligatory. Mackay (*Intercolonial Medical Journal of Australasia,* Nov. 20, 1903) notes that the symptoms begin with forceful, causeless, and persistent vomiting, recurring at irregular intervals, associated with constant hunger. The amount vomited is as great as that taken in two or three feedings. Gastric catarrh, characterized by the eructation of large quantities of mucus, shortly develops. Constipation becomes marked, and there is progressive emaciation. Ultimately the stomach dilates, forming a conspicuous bulging in the upper zone, and where emaciation is marked peristaltic waves are plainly visible. In brief the symptoms are typically those of pyloric obstruction, such as would in an adult suggest the diagnosis of cancer or cicatrized ulcer.

The prognosis is by no means hopeless, even under medicinal and hygienic treatment, Saunders having thus cured four out of five cases. The secondary gastric catarrh should be treated by lavage and stomach rest, food being administered by the rectum. The diet should be such as to form no coagulum in the stomach, hence mother's milk is not suitable, though the milk of a wet-nurse in advanced lactation may answer. Whey with cod-liver oil or cream may be retained, and predigested milk should be given a trial in every case. Belladonna, bromide, and chloral, as antispasmodics, have been recommended.

When, in spite of lavage, rectal feeding, and careful diet, the child is steadily failing, operation is indicated. Pyloroplasty is the method of choice. Mackay lost a case after this operation because the redundant mucous membrane entirely occluded the pyloric orifice, even though the muscle had been cut, and the wound had been united at right angles to its long axis. Cautley and Dent report successes in very bad cases; they, however, removed the redundant fold of mucous membrane at the entrance to the pylorus.

Reports on Therapeutic Progress

INFLAMMATIONS OF THE IRIS.

In the *Birmingham Medical Review* for November, 1903, OWEN in a somewhat exhaustive paper on this subject reminds us that heat and cold are useful in relieving pain and reducing inflammation. Of the two, heat is by far the more valuable; only in the early stages of iritis is cold likely to be advantageous, whilst moist heat in any stage is advantageous.

Heat is best applied in the form of pads soaked in hot water or in some sedative solution. Conium and belladonna fomentations are most useful. These applications are best made in the following manner: Pads, circular in shape, composed of six or eight thicknesses of lint covered with oiled silk, should be dipped in the hot solution, wrung out, and placed over the eye as hot as they can be borne, then covered with dry cotton-wool. As soon as one pad is beginning to cool, it should be replaced by another taken from the hot solution; these hot applications should be kept up for a couple of hours or so, and when they are removed the eye should be covered with a mass of heated, dry cotton-wool in their place.

Leeching is a method formerly greatly employed, but not so much used at present. It cannot be regarded as a remedy, but only as a temporary means of assisting the action of other remedies; for the empty blood-vessels are always subject to reëngorgement, and the condition after leeching is soon the same as before. But abstraction of blood has this advantage: when pain or congestion is excessive, or when the pupil refuses—due to overengorgement of the vessels of the iris—to

respond to the use of the mydriatic, the temporary anemia induced by bleeding is advantageous. When leeching is found advisable, it is better to apply three or four natural leeches at once, or to abstract rapidly an ounce or more of blood by the artificial leech, rather than to put on a leech, and then after an interval of a day or two another leech, and so on. The local shock and sudden abstraction of blood are the valuable points to be gained.

Counter-irritation used to be applied with vigor in the acute stages of the disease. It is useless and worse, for it increases the patient's misery.

The pain in iritis calls for special treatment. It is, as a rule, so much worse at night that unless some composing drug is given the patient is worn out by the unceasing pain. Opium in one form or other is most valuable. Great relief is obtained also from antipyrin and phenacetine. Chloral and bromide of potassium, alone or together, are useful for night draughts. A good deal of advantage is gained by free sweating. This may be induced either by hot air or vapor baths, or by the subcutaneous injection of a tenth to a third of a grain of nitrate of pilocarpine.

It need hardly be said that from the first the patient suffering from iritis should be kept at rest; the eyes should be shaded from light and kept more or less constantly covered. It is well, if opportunity allow, to begin the treatment of iritis by a brisk purgative, and when the effect of this is over, let the cause of the disease be what it may, mercury is invaluable in the early stages. It may be given as small doses of calomel combined with opium every few hours, until the first evidences of constitutional effect are manifest. By this means exudation is controlled, and any adhesions which may have formed stand a chance of being removed by absorption of the freshly exuded matter.

This stage in the treatment being reached, any specific remedy indicated by the cause of the disease may be employed. In syphilitic cases mercury should be continued; it is the remedy of all others. Whether small doses should be continued by the mouth, or whether inunction should be used, or any other form of exhibition, is greatly a matter of opinion. The more acute the case, the greater the need for rapid saturation of the blood by mercury, and small doses of calomel given as above indicated form the best means. In later stages inunction is valuable. The author has never tried hypodermic injections of mercury, though it is said to be the most rapid means of obtaining the physiological effect of the drug. In the later stages the perchloride of mercury has great advantages, especially when combined with the iodide of potassium.

In rheumatic iritis the salicylate of soda in 15-grain doses every three or four hours is an admirable remedy, the benefit of which is specially marked in the painful stages—in fact, it does not matter what may be the origin of iritis, this remedy seldom fails to be of use. In the most painful stages of some cases of rheumatic iritis, benefit is obtained from quinine combined with gelsemium or opium. And especially is this true in cases of iritis occurring in patients who have been the subjects of malarial disease. Aspirin is also of value.

In this form of iritis, and in the gonorrheal form, alkalies, particularly the iodide and bicarbonate of potash, and large doses of the benzoate of soda, combined with quinine or tincture of cinchona, are most useful.

Where a gouty element seems to prevail, alkalies with colchicum act like a specific. In cases of iritis occurring in diabetes, salicylate of soda is useful. In tuberculous iritis, quinine, iron, and arsenic, with cod-liver oil, and careful hygiene, should be employed.

A NOTE ON THE THERAPEUTIC VALUE OF MUSK.

This somewhat old-fashioned remedy is commended by CROOKSHANK in the issue of the *West London Medical Journal* for January, 1904. It appears from considerable experience that musk is of benefit, not in every severe case of acute specific infection, but when the symptoms are chiefly due to the intense action of toxins on the central nervous system and when death appears likely from the destruction of the functions of the medulla oblongata. It is of no use to give musk, as it has been known to be given, in typhoid fever with perforation, hemorrhage, or pneumonia; it is of little use in the septic kinds of scarlet fever; and it is not called

for in diphtheria when antitoxin has failed to abate the local spread of the disease; but the writer believes it to be an unrivaled drug in pure cases of acute specific toxemia with especial incidence of the poison on the central nervous system.

The author has on several occasions seen remarkable results from the use of musk in other cases—those in which there are aberrations of the nervous control of the vasomotor system.

Musk is said to be "the dried secretion from the preputial follicle of *Moschus moschiferus,*" and is described as occurring in "irregular brownish grains contained in an oval sac about two inches in diameter, smooth on one side, and covered on the other, outer side, with bristle-like hairs arranged concentrically around a central orifice." *Moschus moschiferus* is the true, or Chinese, musk-deer, and is found only in Central Asia.

The "oval sacs" commercially known as "pods" are, we are told, the preputial folds as removed by native hunters. These pods arrive in England through the Chinese trade, packed by twenties in carved wooden "caddies." On account of their considerable value the pods are entrusted by the firms to which they are consigned or sold to responsible persons for preparation, and these persons have to account very strictly for the quantity given them. The pods are opened with fine scissors, and the large grains are shaken out and carefully collected. These large grains represent the highest grade of musk. Next, the pods are stretched out and carefully scraped with a fine knife. These scrapings constitute the second grade of commercial musk. Lastly, the pods themselves are finely chopped or minced, providing thus the third grade of musk, used we are told by the perfumers in "fixing" perfumes.

On account of the high commercial value ($25 a drachm) of the best musk, there is obviously great temptation for the sale, in substitution, of the second and third grades.

It is the best musk only that should be used therapeutically. It must be given in adequate doses (5 grains every two hours is not too much), for the effect is transitory, owing, it is supposed, to the rapid destruction or physiological neutralization in the body of the active principle.

It is difficult to explain the therapeutic value of musk, but one may suppose that the volatile aromatic substance, which, although of unknown chemical constitution, is believed to be the active principle, has, when conveyed by the blood stream, an action on the nerve cells of the lower brain, either directly stimulant or else antagonistic to the products of the specific microbes; or it may be that the active principle of musk has some power of directly fixing or rendering inert bacterial toxins—that it is, in fact, a natural and non-specific antitoxin.

If musk is to be usefully employed it should be given only in the class of cases indicated, and must be of the finest quality; it must be given at frequent intervals, and by a hand that is not niggardly in either a therapeutic or financial sense.

THE ACTION OF STRYCHNINE IN POLYURIA AND IN DIABETES INSIPIDUS.

L. Feilchenfeld (*Deutsche medicinische Wochenschrift,* July 30, 1903) had occasion to treat an old gentleman who was suffering from polyuria and complete paralysis of the bladder, due to overdistention and slight hypertrophy of the prostate. After prolonged treatment with catheterization, washing out the bladder, etc., little or no improvement was gained. The amount of urine measured over three liters, and the specific gravity varied between 1010 and 1012. Feilchenfeld then tried the effect of strychnine nitrate for the paralysis of the bladder. He started with a single injection of 0.0025 gramme (about 1/25 grain); although no appreciable effect could be noted on the bladder, the amount of urine was considerably diminished on the following day. He continued the strychnine, giving a daily injection, which he eventually increased up to 0.01 gramme (about 1/6 grain), and on the fifth day the amount had decreased to 1400 cubic centimeters. The thirst was lessened, and the dryness of the tongue diminished.

He next tried the strychnine on a case of diabetes insipidus in a woman aged fifty-two. The amount of urine daily was about 4000 cubic centimeters, and it had a specific gravity of 1002. He started the treatment with injections of 0.005 gramme (about 1/12 grain). On the eighth day

she was passing 2500 cubic centimeters, and the thirst, dryness, and other symptoms lessened, and she gained in strength. The specific gravity, however, had not altered. That the strychnine acted directly on the central nervous system, and not on the vessels in the kidney, is shown by this maintained low specific gravity. He regards the results as important enough to justify further observation, and possibly trial in cases of diabetes mellitus with polyuria.—*British Medical Journal,* Nov. 28, 1903.

ALCOHOL IN TROPICAL CLIMATES.

Major FRIBIG, who has served in the Dutch East Indies since 1879 as an army surgeon, is the author of a paper on the influence of alcohol on Europeans in the tropics which was read recently at Aix-la-Chapelle. Acclimatization, he says, is the result of a new regulation of the course of the blood by the vasomotor system. The use of alcohol in a hot climate weakens that system and consequently interferes with the acclimature. Up to 1898 every Dutch soldier serving in the tropics used to receive 100 cubic centimeters of wine daily as part of his ration, but in May of that year General van Heutsz, governor of Atjeh, reduced the allowance by one-half, and, moreover, permitted the men who were so inclined to draw its value in money instead of the liquor. The officers, whose daily allowance was half a bottle of red wine per head, were also given a similar choice. From that moment, continues Major Fribig, the soldiers, stimulated by the example of their officers, became total abstainers in large numbers and exhibited a power of resistance against disease and fatigue, as well as an obedience to discipline, such as never before had been seen during any of the wars and expeditions which had occurred in Dutch India. The sick rate at once began to fall, a remarkable diminution being observable even with the first three months.

Major Fribig, who has been a total abstainer since 1894, used formerly to indulge in siestas, but never does so now. The midday heat has no injurious effect on him, and he is able to work during the afternoon with as clear a brain as in the morning. While he was a consumer of alcohol exercise under the sun's rays used to exhaust him very quickly, leaving him bathed in sweat and completely worn out. Now he can support the hardest outdoor work without blanching; although forty-six years old he lately took part in an arduous expedition, and was able to perform the longest and most toilsome marches with comparative ease. It was the same with the other abstainers, but all who adhered to their wine suffered severely, and in many cases broke down altogether. Major Fribig knows a great number of officers and men who continue to consume alcohol, but are nevertheless able to carry out their duties efficiently in time of peace. They are therefore looked upon as fit for active service, but no sooner are they put to the test of hard work than they succumb. Their vascular systems are unable to withstand the extra strain; weakness or paralysis of the heart renders most of them absolutely unfit for duty. Many victims of the alcohol habit become moral wrecks, losing all energy and initiative. Suicides amongst the troops in Dutch India are invariably consumers of alcohol. Among the diseases which Major Fribig found far more virulent and fatal in non-abstainers than in abstainers are palustral fevers, hematuria, cholera, dysentery, cirrhosis of the liver, neurasthenia, cephalalgia, syphilis, and surgical injuries.—*Lancet,* Nov. 28, 1903.

THE TREATMENT OF NEPHRITIS.

Editorially the *British Medical Journal* of November 28, 1903, gives the following as Professor von Noorden's criteria in the treatment of renal disease. They are three. First, there is the general condition of the patient as shown by the clinical course of the malady. Secondly, there is the amount of albumin, which is a valuable sign in acute nephritis, but extremely variable in the subacute and chronic forms. It has, indeed, been shown that the amount of albumin often increases when the diet is suddenly altered in the direction of either latitude or greater stringency. The third test is the amount of metabolic products excreted, which is not to be gauged by the tests made with potassium iodide or other similar methods. The fundamental method of treatment must be to protect the kidney

while avoiding injury to other organs. It is essential, therefore, not to give substances which are excreted with great difficulty by a diseased kidney. Among these, Professor von Noorden refers particularly to urea, kreatinin, pigments, hippuric acid, phosphates, inorganic sulphates, and water. With regard to the pigments, his account is hardly in accordance with modern physiological views; thus he believes that the chief of these bodies found in the urine are urobilin and hematoporphyrin. In order to avoid the ill effects of phosphoric acid he recommends that calcium carbonate be added to substances containing it.

One of his strongest and most original points is his attack upon the milk diet which is so commonly prescribed in renal disease. He holds that milk contains on the whole too much proteid, and he recommends that it should be restricted to three pints a day, to which a pint of sterilized cream should be added. At the same time too much fat must not be given, as it simply loads the system; later on he allows the amount of milk to be increased as the excretory power becomes greater. In order to avoid the production and accumulation of hippuric acid, he recommends that substances containing benzoic acid and its derivatives should be avoided; contrary however to popular opinion, he regards vinegar as being harmless, and states that the same applies to uric acid and its bases since they are not retained in cases of nephritis. With regard to water, he is for giving as little as possible in acute nephritis with edema, for fear of overloading the circulation; at the same time he considers that diaphoresis is only indicated when diuresis is deficient.

Coming to the special treatment of the varieties of nephritis, Professor von Noorden recommends that in the acute form; when there is oliguria and edema with threatened uremia, the amount of fluid administered should be restricted to a minimum, such as a pint of milk a day; in this stage he holds that a little alcohol may be desirable to whip up a failing heart. In our opinion this view is hardly warranted, as the introduction of so intense a renal irritant into the circulation cannot fail to increase the damage which is being done to the kidney epithelium. It is as a rule far better to substitute other methods, to which no reference is made in his book, such as venesection and the use of preparations containing ammonia, particularly the carbonate. In less acute cases Professor von Noorden recommends a simple menu consisting of 3 pints of milk, ¾ of a pint of cream, 1½ ounces each of rice, rusk, and butter, and 2/3 ounce of sugar per day; such a dietary gives 2900 calories when consumed. The amount of water to be permitted in addition to the milk is to be regulated entirely by the capacity of the kidney for excreting it. If this is great an abundance of liquids may be allowed; if it is deficient, they must be restricted. In the granular kidney attention is first called to the importance of distracting the patient's attention from the condition of his urine, particularly with regard to that variable factor the amount of albumin. It is pointed out that, as has long been known, pronounced retention of urea and such like products, especially late in the disease, is a very bad sign.

With regard to the administration of alcohol, Professor von Noorden is inclined to be more restrictive here than in acute nephritis, seeing that the patient is not, as in the latter disease, under continuous medical control. He holds that alcohol should only be permitted as a drug, the indications being loss of appetite and cardiac disturbance. As the results of various investigations, he condemns radishes, but permits asparagus, while he finds that celery is sometimes harmful and sometimes innocuous. Whether conclusions on these points, based upon the examination of the urine as regards albumin and casts, are of final clinical value is, however, a point which has yet to be decided. Coffee, tea, and tobacco are condemned as being injurious to the heart.

With regard to the question of red and white meats, Professor von Noorden is distinctly inclined to remove the embargo upon the former, holding that it has not been shown that they really contain more extractives than the latter, though he hardly seems to realize the fact that on his own showing they ought to be condemned as containing more pigment. In one respect he is undoubtedly quite correct, and that is that the comfort of the patient is greatly enhanced by permission to vary

his diet by an occasional meal of dark meat. The extreme lower limit of proteid which should be allowed is three ounces; if less than this is taken, the patient becomes weak and fat, and is liable to cardiac degeneration. The author enforces restriction of the amount of water taken to two and a half pints a day as a maximum, asserting that greater quantities throw an increased strain upon the heart and circulation; and he holds to this rule even in cases complicated by gout. One serious complication which must be strenuously avoided is obesity, but at the same time it is of great importance not to reduce the weight violently. In moderately severe cases baths containing carbonic acid are recommended, and steady muscular exercise is allowed until the last stage is reached.

THE TREATMENT OF CANCER BY CAUSTIC PASTE.

The *Medical Record* of December 12, 1903, contains an article on this subject by C. W. ALLEN. In looking over his statistics of epithelioma treated before the days of the *x*-rays, and comparing the results with those following *x*-ray treatment, the author was struck with the little difference to be discovered. Comparing fifty cases treated by pastes alone with fifty patients who had the benefit of the *x*-ray in addition, or as the sole method employed, the final results, number of recurrences, etc., were almost identical. His table of the exact figures is in the printers' hands, but will soon appear in book form.

Since the above was written, the author has found on page 127 of the last volume of "Progressive Medicine" a quotation from some of his own writings in Dr. Gottheil's really excellent review of dermatology and syphilis, as follows: "Allen's conclusions represent the position that seems rational, and as they summarize our present knowledge upon the subject, I repeat them:

"1. Cutaneous cancer is traceable in almost all cases to preceding local irritation.

"2. There may be other causes, but infection is probably a source of the disease.

"3. Benign epitheliomatous proliferation may be infectious.

"4. Cancer is curable, but if the disease is allowed to progress the patient may not be.

"5. Only the most radical treatment is to be tolerated.

"6. Caustic paste, with subsequent caustic dressing, is radical, and is often preferable to the knife.

"7. The earlier cancer is treated the less likelihood is there of relapses or metastases.

"8. The *x*-ray bids fair to be as effective as caustics."

With this added strong authority for the use of caustics it would seem that writers should refrain from referring to the method as one leaning toward charlatanism.

THE PRESENT POSITION OF ETHYL CHLORIDE.

In a letter addresed to the London *Lancet* of November 8, 1903, LUKE expresses his views once more as follows: (1) Ethyl chloride is a pleasant anesthetic to inhale, extremely rapid in action, very portable and inexpensive. (2) It compares favorably with nitrous oxide as regards induction of anesthesia and available period: it produces no cyanosis, when used in suitable doses, and necessitates the carrying of no heavy and cumbersome impedimenta. The advantage of this to the general practitioner and dentist in the country is obvious. (3) The technique of the administration is very simple. (4) While not as safe as nitrous oxide in the hands of the unskilled, we are justified in concluding from the material available that it is safer than ether, all things considered, and much safer than $CHCl_3$, or bromide of ethyl. (5) It can be safely readministered at one sitting, this being a further point in its favor over bromethyl. (6) It is not usually followed by marked after-effects. (7) It is preferable to nitrous oxide when the patient is very young, very old, or anemic, while those who are suffering from cardiac, renal, or lung affections take it quite well. (8) It is in no way to be preferred to $CHCl_3$ or ether for prolonged anesthesia, but may be used with advantage merely to induce anesthesia which is maintained either with $CHCl_3$ or ether. (9) For minor surgery, throat operations, and the extraction of teeth it is the best anesthetic available at the present time.

(10) Pure ethyl chloride, sold as such, is always preferable to proprietary preparations and to mixtures. (11) In conclusion, one of the strongest claims of ethyl chloride to being considered a fairly safe anesthetic lies in the fact that during the past twelve months it has been experimented with wholesale throughout the country, and yet no death has been recorded. It is quite possible that we may hear of one or two from time to time now as the anesthetic becomes more widely used, and often by quite unskilled and inexperienced persons, but that should not blind us to the real merits of the drug when used with reasonable precautions.

THE TREATMENT OF LOBAR PNEUMONIA.

In the course of a paper on this subject by BUTLER, which is abstracted in the *Medical News* of December 12, 1903, he expresses the belief that cardiac weakness is perhaps the main source of danger in pneumonia. Circulatory impairment in the early stage of the disease is in all probability due for the most part to the depressing effect of the toxemia on the central vasomotor apparatus; in the later stages and during convalescence, to acute myocardial disease. Strychnine, the muscle energizer and central vasomotor stimulant, is a remedy of the first value. One-fortieth or one-twentieth grain, or even more, should be given every two hours, and it should be administered hypodermically if prompt action is desired, or if there is the least doubt as to its absorption by the stomach. Next to strychnine is caffeine, either in the form of the citrate, or better, as strong black coffee—one to two ounces every two to four hours. Brandy, whiskey, the stronger wines, camphor, and aromatic spirit of ammonia are useful adjuvants; digitalis, nitroglycerin, strophanthus, and sparteine may be given in full doses. An occasional dose of atropine and quinine bisulphate hypodermically is of service, and the rectal administration of strong coffee with whiskey, or an emulsion containing 30 grains of musk may be called for in urgent cases. The possible usefulness of the powdered suprarenal, or its active principle adrenalin, should also be borne in mind. Swathing the thorax in flannel wrung out of hot mustard water is often advantageous. The use of morphine in small doses (1/30 to 1/15 grain, repeated or increased according to circumstances) will accomplish results obtained by no other drug, quieting and soothing the patient and steadying and improving the action of the heart. Especially if constipation, flatulence, or edema be present, calomel and compound jalap powder, in full dose, may act very happily, or some saline may be substituted. The subcutaneous administration of a pint or two of normal salt solution is a resource not to be neglected in grave cases.

Pulmonary edema demands repeated dry cupping, hot mustard fomentations, calomel and jalap, large doses of nitroglycerin, moderate doses of atropine, and the free use of oxygen. The judicious physician will constantly endeavor to carry through the individual case with watchful expectancy, the least possible of meddlesome therapeutics, and the careful observation of the patient's strength. While, however, giving as little active treatment as the case will allow, he will not hesitate to employ the most active and vigorous treatment when it seems indicated, making use of every measure which clinical experience has proved to be of value, though even slight.

In discussing Butler's paper Dr. A. A. Smith said he was thoroughly in accord with most of the views advanced. His experience with creosote, however, was of a character contrary to that of Dr. Butler. In his hands it had proved of no benefit whatever, with the exception of cases where the disease was confined to one lobe and there was a general bronchitis present. He had also found it useful, in small doses, in tympanites. Neither could he indorse the use of quinine, except it might be on account of the presence of special conditions, and stated his conviction that in the large doses in which it was formerly given the depressing effect of the drug had sometimes led to fatal results. Like Dr. Butler, he advocated the use of oxygen, and said that he had often seen good results from it where there were cyanosis, pulmonary edema, etc. There appeared to him to be certain objections to the mitten rub. These were purely clinical, such as disturbance to the patient. For the application of either cold

or heat he preferred the use of flannel wrung out of water and constituting a compress. To serve the best purpose it was necessary that it should be applied to a large surface of the body, and he believed that this measure was a valuable respiratory and circulatory stimulant, and, above all, a marked nervous sedative. Recently he had obtained good results by keeping the flannels at a temperature of 90° F.

Personally he is a firm believer in the very pronounced influence of the nervous system in producing cardiac weakness, and he thinks it is through this that we can best afford support to the heart. It is through the agency of the nervous system that strychnine is so beneficial. Alcohol is apt to be given too early and too freely. It should be administered in moderate quantities, and in the majority of instances is not required at all. It is of great value, however, in cases occurring in chronic alcoholics, and here it should be begun very early, as the active delirium apt to to be met with in such cases has a most disastrous effect upon the nervous system. Nitroglycerin is a great aid to other remedies, such as strychnine and caffeine, and is absolutely safe.

Dr. George L. Peabody thought the treatment might be divided into (1) an intelligent symptomatic treatment, and (2) an attempt at a specific or definite treatment. As to the first, delirium seemed to him one of the most troublesome and grave symptoms, and in his experience delirium with high fever could not be well treated by means of drugs. These are greatly inferior to hydrotherapy, and although Dr. Butler considers it unjustifiable to put a pneumonia patient in the tub, he believes that he has convinced several generations of hospital internes that the cold bath, precisely as used in typhoid fever, is the best treatment for raving alcoholics with high temperature. If this method seems too heroic (the patient being very feeble), or if there is delirium without sufficient fever to justify the cold bath, he is accustomed to use the cold pack, for which he thinks linen greatly superior to woolen or cotton. In speaking of specific treatment he quite agreed with Dr. Butler as to the necessity of a very large number of cases in order to arrive at any definite conclusions. He would only give his experience with a limited number for what it is worth. He has been favorably impressed with the salicylates. Aspirin is an excellent way of giving salicylic acid. Under its use patients appear to stand the disease better than otherwise. Crisis is uncommon; lysis the rule. During February, March, and April, 1903, he treated forty-three cases with creosote carbonate. In these lysis was noted in 48 per cent, and crisis in 21 per cent. Thirteen patients, or 30 per cent, died. He is not yet convinced that we have any specific for pneumonia. At present he considers it the best plan to employ an intelligent symptomatic treatment, in addition to the administration of one of the so-called specifics.

Dr. Herbert F. Williams said there is one measure which, when properly used, outweighs everything else in importance. By venesection the overburdened heart is relieved, the blood robbed of an appreciable quantity of exudation product, and the pneumonic process thereby limited. It is most apt to be called for in the robust and well-to-do, whose fund of health seems contributory to the intensity of their pneumonia. The statistics of our fathers in the treatment of such cases, he thinks, would not suffer in comparison with those of their sons. In lesser pneumonias, even lobar, pain is often an early and obstinate symptom, and can be relieved better by other means than opiates. The seat of the pain is in the pleuræ, and by a unique anatomical and physiological association of the cutaneous, intercostal, and visceral nerves we can influence the circulatory condition in the pleuræ by directing the current toward the surface. This is the rationale of the law of counter-irritation, and as applied to pneumonia it cannot be better secured than by wet-cupping directly over the inflamed point. The contingent effect of the immediate relief from pain thus afforded may be more radical upon the pneumonic process than one would lightly suppose; for the relief of pain permits a full inspiration. He has often seen a bronchial respiration thus reduced to bronchovesicular, and believes that wet-cupping is not only a safe but a mandatory procedure in early pneumonia.

TREATMENT IN 442 CASES OF MOVABLE KIDNEY WITHOUT SURGICAL INTERVENTION.

To the issue of *American Medicine* of December 5, 1903, AARON gives his experience as outlined in the above title. He believes the main treatment for movable kidney is to support the dislocated organ, and along with it such other abdominal organs as are displaced, and to maintain them in their normal position as near as possible. This is usually accomplished by means of special bands. These should be constructed for each patient out of stiff material, and should fit accurately. There is no one band that will fit all patients. If the intestines are in position, care must be taken that the band does not press upon these organs, as a great deal of harm may be done in this way. It is a good plan to inflate the colon with air and then map out carefully the transverse colon, as this is apt to be prolapsed. The position of the stomach must be made out accurately. It is necessary to know the position of both spleen and liver. The author takes a model of the abdomen with a piece of pliable lead so as to get the exact shape of the patient just at the lower edge of the displaced kidney. It is here that the greatest pressure must come. There should be no pressure directly upon the kidney itself. With a band fitting properly just under the displaced kidney, it will be supported and held in its normal position. Every band should be made so that there is a uniform pressure over the whole lower part of the abdomen. The pads must be so arranged that they push each displaced organ from below upward and backward. All pressure upon the upper abdominal region should be avoided. After the proper fitting of a band an examination of the stomach contents will decide the best dietetic and medicinal method of treatment.

Ready-made abdominal bands for holding the kidney and other organs in position are usually failures. The physicians send their patients for a band to an instrument-maker who has not the slightest conception of the result which should be obtained. It does not make much difference to the instrument-maker whether the kidney is displaced at the level of the umbilicus, or whether the kidney is as far down as the brim of the pelvis. It does not make any difference whether the stomach is partially prolapsed, or whether part of the intestine is prolapsed. The patient is sent for a band, and a band is sold. At the end of a few days the patients say that they cannot wear such an apparatus on account of the discomfort. The pressure may be upon some weak point, which causes a great deal of pain. Many times patients are sent by their physician to the surgeon for an operation without much more consideration. It has been found that between 90 and 95 per cent of these patients can be cured by the fitting of a proper support, and it devolves upon the physician to see that a proper band to hold the organs in position is made.

It is not an easy matter to fit a band to patients having ptosis of the abdominal viscera. The author has had as many as five different bands made for one single patient before a satisfactory one was obtained. Every case demands special study and careful consideration. The author maps out the position of the kidney, liver, spleen, stomach, and inflates the colon with air, so as to be sure that there is not a coloptosis. When fitting a band the pads must be so arranged as to hold up all the different organs which are displaced, at the same time exercising equal pressure over the entire abdomen.

Operations for movable kidney have not given good results, while the wearing of bands properly fitted gives the best results. Before deciding to operate for movable kidney, the surgeon must consider that the downward displacement of the other abdominal organs is apt to be present. When we have a movable kidney, we may also find a displaced stomach, small intestine, colon, sigmoid, liver, or spleen. These may be displaced anywhere from their normal position down to the symphysis. One can readily see the absurdity of endeavoring to apply a support without a study of the degree of displacement of each organ, as one or all may be displaced at the same time. It has always been the author's method, in fitting an abdominal band, to be sure of the position of all the organs in the abdominal cavity. This is absolutely essential if one wishes to attain a satisfactory result. Under these circumstances the application of a properly fitting band which will immobilize the kidney has immediately a

beneficial effect. The patients feel relieved, are much stronger, and able to breathe better. Patients who have had distress after meals are now able to eat without discomfort. Their weakness, constipation, insomnia, and distress begin to subside, and on the whole their improvement is very rapid. It is only necessary to wear a band until all these symptoms subside. Emaciated patients gain in weight, and the kidney is again protected by the natural fat. The patients are allowed to wear a band one year.

It has been repeatedly proved that many patients have a movable kidney without suffering any discomfort. Again, a slight nephroptosis may be the cause of the innumerable symptoms. When patients have gastrointestinal and nervous symptoms it is believed there is always a ptosis of some other organ of the abdomen besides the kidney. The cases in which the kidney alone is movable are those that give little or no symptoms.

Besides properly supporting the kidney and other displacements of the viscera, diet, tonics, electricity, and massage all hasten the result of the treatment.

A FATAL CASE OF POISONING BY QUININE.

The *Medical News* of December 5, 1903, gives the following abstract of a case which is of interest, the literature of quinine poisoning being very scanty and a fatal case almost unique. It is reported by R. H. Quill (*Journal Royal Army Medical Corps,* October, 1903): The patient swallowed, evidently with suicidal intent, a quantity of sulphate of quinine in solution, amounting to about 240 grains. Within two minutes the symptoms of poisoning came on, beginning with retching and vomiting, which was favored by the prompt administration of an emetic. This was soon followed by almost total unconsciousness, slow and labored respiration, and a barely perceptible pulse, which, under very active stimulation, would return for a time only. A few hours later convulsions affecting mainly the lower extremities came on, and this was soon followed by death. Post-mortem examination showed the blood fluid and very dark in color. The brain was congested, and the lateral ventricles were full of serum. The liver, lungs, and kidneys were also congested, but otherwise healthy. There was no inflammatory or corrosive appearance of the mucous membrane. The author believes that if the stomach pump had been efficiently used within a short time after the accident, it is very possible that the fatal issue might have been avoided.

TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS.

In the *Southern California Practitioner* for December, 1903, WING in discussing this disease reminds us that the indications for treatment vary with the stages of each attack. In the stage of invasion we must strive to limit the amount of blood in the spinal cord; that is to say, arrest the inflammatory and degenerative processes and promote the quiet and comfort of the patient.

Keep the patient and the room quiet. Try to have the patient lie upon the side. Try to use hot applications to the spine—a useful measure if efficiently done, a harmful measure otherwise. If either of these things, or the use of sinapisms to the spine, increases the restlessness of the child much, omit them. Do not fail to learn the state of the urinary bladder and meet the conditions.

If fever is present aconite and phenacetine are probably the best drugs. Aconite is best given by Ringer's method, an average dose every twenty minutes for an hour, then every thirty minutes for two hours, and subsequently *pro re nata.* The best results in giving phenacetine for fever follow an average dose every half-hour three or four times, and then at intervals of from two to four hours. An average adult dose is one grain an hour, but when more than four grains is given at one time an undesired amount of sweating is apt to occur.

If pain is present, phenacetine in relatively large doses is often an efficient drug, at whatever intervals the amount of pain suffered indicates. Hot applications to the seat of pain, if efficiently made, may obviate the use of analgesic drugs. Opiates are rarely needed. Sodium bromide may be needed as a sedative.

An active purgative is always indicated For children, calomel is the favorite. The

1-20 grain tablet triturates made by Fuller's method are the best. Give ten at once, and repeat one every two hours till a free movement occurs.

If the bladder is normal the free use of water will secure ample diuretic effects. There is no very valid objection to simple diuretics; but if the bladder is paralyzed diuretics are contraindicated.

In selected cases hot baths or prolonged warm baths may be of service. As a rule it is probably better not to use them.

The kind and amount of food given should be specified by the medical attendant, and is to be determined by the usual rules.

In the stationary period, the interval between the acute symptoms and the well established paralysis—from two to six weeks—the therapeutic indications are to keep the patient quiet and to maintain the general health. Tonics may fail to do the patient good, but they cannot fail to help the family. Hence do not abuse them, but use them.

Gentle exercise, massage, and electricity may be used at this stage.

As soon as general conditions indicate that active measures do not increase existing conditions, systematic and persistent exercise must be begun, pushed vigorously, and continued for more than a year. Voluntary exercise is excellent, but is rarely efficient. Massage is by far the best method of exercise, and when mechanical massage is available, practically it is better than manual massage.

The therapeutic use of electricity in these cases has two points in its favor—it may please the friends of the patient, and it can be made to exercise the muscles. It is not often possible to induce a child to tolerate a current strong enough to secure efficient muscular contractions, and hence the therapeutic value of electricity in these cases is variable and uncertain.

Attention must be called to Gower's assertions that in these cases after six months the lesion in the cord has become a scar and cannot be influenced by any therapeutic measure. This is eminently true, and in the chronic stage medicines cannot influence the cord or the paralysis, but treatment can, and this treatment is exercise of the affected muscles. Such exercise must be energetically continued as long as any improvement at all is observed. This period, as stated already, may be much more than a year.

In all stages of the disease the affected limbs must be kept warm and protected, and the best orthopedic skill available should be secured to reënforce and supply weakened and lost muscles.

In the hopelessly chronic cases tendon transplantation has proven of great value.

CARE OF PREGNANT AND PARTURIENT WOMEN.

MAGEE in the *Southern California Practitioner* for December, 1903, gives the following advice in regard to the care of pregnant women:

The author states that no one has a right to take a case unless he has the time to give that is required. There are a great many men who will apply forceps to terminate a case simply that they may get away and attend to other business, when the case would terminate itself if given a little time. If the physician is rushed with work let him turn his case over to some one who has more time and is equally capable, and there are plenty such. Of course, let it be understood that the value of applying forceps when indicated should not be underestimated. There comes a time when the safety of the mother and child, or both, demand it, but as long as both are doing well do not operate simply to save your time.

In regard to preparation, be as careful as if preparing for an abdominal section. The time is past when a man can enter the lying-in room with his street clothes on, and having washed his hands in a precursory sort of way, pour some oil on the fingers and make an examination under the patient's clothes, she perhaps standing. The writer has seen this very thing occur. Make as few vaginal examinations as possible. In normal cases one or two at the most are all that are required. He has seen men sit for half an hour at a stretch with the hand in the vagina, pretending to help the patient. The chances for him doing damage far exceed the little help he may be giving. The less meddling the better. It is better to use gloves, or at least finger-cots, on the examining hand, and one should wear a sterilized suit or gown during the delivery. After delivery careful attention to any

tears, and then the delivery of the afterbirth, allowing at least twenty minutes before resorting to Credé's method, and an hour before manual delivery is attempted for adherent placenta, and then only after another complete cleaning up. A drachm of ergot by mouth is the writer's routine practice after the placenta is delivered. Sterilized pads should be placed on the perineum.

POISONING PRODUCED BY THIRTY GRAINS OF SALICYLATE OF SODIUM.

Among the interesting reports on excessive effects of drugs which we publish from time to time the following record by JONES in the *Glasgow Medical Journal* for January, 1904, is of interest:

The diagnosis made was lumbago with sciatica. The treatment consisted of an external application of chloroform liniment, and the internal administration of 30-grain doses of salicylate of sodium in a tumbler of water.

In about three hours after his first visit the author again received an urgent summons, and found that within a comparatively short time after taking the first powder and applying the liniment she spoke favorably of her feelings, and remarked that she felt quite strong, and had only a slight sensation of pain. Shortly afterward she complained of a feeling of swelling in the abdomen, which quickly became distended, producing much discomfort and oppression. She had also a considerable amount of pain in the abdomen and back; a singing noise in the head, as if it would burst; and a hissing noise in the ears, like the blowing off of steam. Then followed an outburst of great excitement, the patient expressing herself in exaggerated and strong language, and becoming very violent.

When seen in about an hour after this outburst she complained of a great load or weight about her heart, "as if dragging," and a sensation of sickness. She had a general feeling of prostration, and expressed the belief that she was dying. She was absolutely free from pain, but complained of thirst and of a ringing noise in the head. The heart was regular, the pulse full and bounding, 100 per minute; respirations free and regular; temperature normal; the tongue white.

Previous to this the patient had passed a great quantity of wind, and had also evacuated much urine. During the hour the writer remained at her side she was rather restless, tossing her head from side to side, and throwing her arms about. She remained in this state for about four hours, and then dropped over to sleep. When seen the following day she was in her usual health, and complained only of the pain in her back and leg.

The question arises whether these symptoms were purely those of salicylism, or a case of salicylism with hysteria. If it were salicylism, then a single dose of 30 grains, well diluted, produced it, as the patient had not had any medicine previously. This dose, though comparatively large, is by no means so large as the author has prescribed without bad effect.

If the question of hysteria be taken into account—and in this patient something of the kind is suspected—one would require to prescribe cautiously in such cases. Moreover, the menses were present at the time, and this circumstance suggests that it might be well to make inquiries about this function before prescribing in such cases.

A sample of the salicylate of sodium prescribed was submitted for analysis to Professor Stockman, who kindly interested himself in the matter. On his authority the writer is in a position to state that the medicine used was perfectly pure.

TREATMENT OF EPISTAXIS.

SOUTHARD advises the following plan in the treatment of epistaxis. In the *Pacific Medical Journal* for December, 1903, he reminds us that in the treatment of epistaxis we should bear in mind a fact which may save ourselves much anxiety, viz., that clinical experience has demonstrated that hemorrhages from the nose, whether following an operation or an accident, have a tendency to cease spontaneously. Fear may prolong the attack by exciting the heart's action. In profuse hemorrhage a patient may even lose consciousness, when the hemorrhage stops for a time.

The treatment is purely local. In every case of epistaxis the first thing to do is to examine with painstaking care the interior of the nose for the source of the hemor-

rhage. This must be done under good illumination; usually slight pressure over the septum will check the bleeding for a moment, giving the examiner an opportunity to locate the bleeding point. He should then cauterize the erosions either with chromic acid or the electrocautery, which usually acts promptly. In case the general practitioner has not the appliances at hand to carry out this treatment, what may he do to check the hemorrhage temporarily? In the first place, as stated above, the hemorrhage tends to cease, but if it does not, then he may try various remedies, as follows: First, try firm pressure over the cartilaginous septum. This is done by taking a wad of absorbent cotton, moistening it with a two-per-cent solution of cocaine, to which may be added a few drops of adrenalin, if convenient. With the finger the cotton is held against the septum. In very many cases this will be all that is necessary. In a few moments the bleeding stops, and, for a time at least, we need not expect a renewed attack. Should this fail, ice compresses should be applied to the nose, while to the back of the neck an ice-bag may be held. These simple remedies failing, he may resort to plugging of the posterior nares or packing with strips of gauze through the anterior nares. These two methods call for exceptional care, as there is more or less danger of causing injury to adjacent parts, and an inflammation in the Eustachian tubes, when a mastoiditis with cerebral complications may follow (Casselberry).

The safer method is to use the Simpson intranasal tampons, which will be found to act more promptly and safely than either the postnasal plug or gauze tampon. These intranasal tampons are made by placing a thick layer of cotton between two layers of thin muslin, then under great pressure the cotton is compressed into sheets resembling cardboard of about one-quarter of an inch in thickness. By means of dies these sheets are cut into various sizes. If too large they can be trimmed with ordinary scissors, when they are more easily inserted into the nostrils. In a few minutes they expand under moisture in the nose and compress the bleeding points firmly. Experiments made show that they exert several pounds pressure. The following day the tampon can be easily removed. With one of these plugs in his nose a patient can be sent to the specialist should the general practitioner not care to assume further responsibility.

It should be understood that none of these remedies have a curative action. They are used to stop the present hemorrhage, after which more radical measures must be employed to effect a permanent cure. For this purpose no better method than cauterization has been found. Should the general practitioner not care to assume responsibility in a given case he can insert a Simpson intranasal tampon, when the patient can safely journey to the specialist. For office work the author prefers the electrocautery rather than the chromic acid, as it is easier controlled.

THE TREATMENT OF CATARRHAL ENTERITIS IN WOMEN.

In the *American Journal of Obstetrics* for December, 1903, GILLMORE tells us that above all things patience is the prime requisite for the successful treatment of this decidedly chronic complaint. The patient is requested to weigh herself in the beginning of the treatment, so that accurate information may be obtained from time to time. Her diet, even in very marked cases, may be comparatively generous: Clear soups, eggs in all forms, one or two quarts of milk daily, matzoon, buttermilk, etc., rice in small quantities, small amounts of bread twice baked, and water crackers, custards, ice cream, roasted and broiled meats. Vegetables are usually restricted entirely at first, as well as all uncooked fruits, pastry, cake, etc. After a few weeks of experimentation the patient herself will be able to modify, enlarge, or restrict her diet according to her requirements.

The bowels should be regulated with some form of cascara sagrada. If there is a tendency to obstinate constipation, or too free movements, high colonic flushing is indicated. The patient is directed to take a quart or more of warm water, mildly alkaline, or normal saline, for the purpose of emptying her lower bowel. This is followed by a quart of water containing 8 cubic centimeters of the normal fluid extract of hydrastis. When it is difficult for the patient to take a satis-

factory high enema, the knee and chest position is a valuable and simple means of accomplishing the desired end.

The writer has obtained uniformly excellent results with a pill consisting of powdered ipecac, 1-8 grain beechwood creosote, 2 grains black pepper powder, 2 grains naphthol, 1 grain extract of hydrastis. These pills are so coated that they are not affected by the gastric juices.

Acetozone suggests itself as a valuable adjunct, but as yet evidence sufficient to be valuable has not been gathered.

In conclusion, the writer cannot dwell too strongly upon the value of inspecting the feces, and ranking it as equally important with the chemical and microscopical examination of the twenty-four-hour specimen of urine. If this is done he believes many an obscure case which comes to the gynecologist for relief, and which is, in many instances, treated unscientifically and with unconscious cruelty by the man who in his heart says "neurasthenic," will yield gratifying results.

OBSERVATIONS ON PUERPERAL SEPTIC INFECTION.

JEWETT contributes to the *Brooklyn Medical Journal* for January, 1904, a paper on this theme. He points out that the diagnosis must exclude non-septic infectious diseases and other than pelvic sources of septic infection. It should also be known whether the vagina or the uterus is the seat of the infectious focus. In nearly all cases the primary seat of infection is the uterine cavity.

Membranous patches in the vagina may be treated with applications of tincture of iodine or of strong carbolic acid, followed immediately with alcohol, and repeated two or three times daily, or may be dealt with after the method of Webster by vaginal packs of glycerinated formalin.

When the uterine cavity is the seat of infection, the uterus should be explored digitally to learn whether it contains fragments of placenta or of membranes or blood-clots.

Necrotic material can best be removed with the gloved finger and dressing forcepts. Débris may be swept out with a soft cotton ball held in dressing forceps, or by irrigating with normal salt solution. The foregoing manipulations should be conducted on a table with due aseptic care.

The dull curette is indorsed by many authorities, but results are better without even dull curetting.

Repeated curetting or douching is especially injurious.

When the uterus is empty no local measures are indicated. It should be remembered that about eighty per cent of streptococcic infections of the endometrium recover without treatment. On the other hand, most virulent infections will end fatally whatever treatment is employed. The temptation is to do too much.

The systemic treatment consists in bracing the resisting powers and in promoting elimination.

For the former purpose strychnine and alcohol are the principal measures.

Elimination is favored by one or two bowel evacuations daily, and by diuresis. Plenty of water should be introduced into the circulation by the stomach by enteroclysis, or if necessary by hypodermoclysis. The addition of acetate of sodium to the fluid injected adds to the diuretic effect.

Antipyresis when required may be effected by sponging or by wet sheet packs with water at a tepid or neutral temperature. The author's practice is to wet the double gauze sheet at short intervals with water, at body temperature. This involves no shock, is more agreeable to the patient, and more successfully controls the pyrexia.

Pus collections should be detected promptly and be dealt with as in other conditions.

Particular attention should be paid to the regulation of the feeding.

Under this simple plan of treatment the prevailing mortality may be very greatly diminished.

THE EFFICACY OF THE TREATMENT OF ACUTE AND PURULENT OTITIS BY ASEPTIC DRAINAGE.

In the *Journal of the American Medical Association* of January 2, 1904, GRADLE contributes an article on this subject. The object of his paper is to show the superiority of the treatment of acute purulent otitis by aseptic drainage. The method itself is the familiar one which has gradually gained in popularity. Its principles are paracentesis as soon as the diagnosis is made, and continuous absorption of the

discharge by an aseptic gauze drain in the meatus and a large dressing over the auricle. After sterilization of the meatus and auricle by means of carbolic acid solution the sterility of the gauze is further assured by the liberal use of powdered boric acid in the dressing. The external gauze pad is changed as soon as moisture shows, while the tampon in the meatus may be left twenty-four to forty-eight hours at a time.

Notwithstanding its simplicity and efficacy, the superiority of this treatment is not universally acknowledged. In illustration the author quotes two recent publications by acknowledged authorities. Politzer, in the latest edition of his textbook, does not wish to exclude syringing and other methods completely, and speaks of the "dry treatment," but in terms of qualified praise. Bezold prefers syringing, mopping, and boric acid insufflation because he has seen unsatisfactory prolongation of the discharge and frequent complications in the form of mastoiditis in consequence of the dry treatment. Gradle attempts to show us that such unfavorable opinions must have been based on imperfect technique.

What criterion are we to apply in judging of the efficacy of any treatment of purulent otitis? The duration of the disease and its severity are so variable that statistics as to time of recovery are not fully convincing. Even in cases of similar etiology the time of recovery varies with the individual's power of resistance. A valuable contribution to the point is, however, a table presented at the last meeting of the German Otological Society by Koener. Among seventy-eight cases the time required for healing was seven days after paracentesis done on the first day; nine days after paracentesis done on the second day; and up to twenty-six days after paracentesis done on the seventh day or later. From personal experience the author can say that whenever the "dry" treatment was carried out rigidly the course was shorter by at least one-third than he would have expected formerly in cases of similar severity.

The criterion which he has learned to regard as a proof of efficient treatment is the character of the discharge. In the milder cases, which either perforate spontaneously or are punctured within the first or second day, the discharge is always entirely serous and neither stringy nor purulent. He believes that the same rule applies to all cases of acute otitis, no matter how severe, provided the drumhead is punctured early enough. It is true a perforation or a paracentesis done after the third day usually yields a purulent discharge. But whenever the writer has had the opportunity to tap the drumhead earlier than forty-eight hours after the onset he has always obtained a clear fluid. By means of a properly absorbing gauze dressing reaching to the drumhead, and changed sufficiently often to remain absorbing and sterile, this serous discharge can be kept serous. Its change to a purulent fluid is due to faulty technique. No other treatment seems to prevent the discharge from becoming purulent except in the mildest cases.

It has been the invariable experience of the writer that after a climax in the amount of discharge within the first thirty-six to forty-eight hours the secretion diminished steadily and progressively to an uneventful recovery, provided due care was taken to keep it serous. The length of time of the discharge in some forty cases in which the method was carried out successfully varied from five to twelve days in the majority, and but exceptionally ran to fifteen days. If through any neglect the discharge becomes purulent, this progressive improvement is interrupted, as indicated by unchanging rate of secretion, and hence longer duration, greater discomfort, and the possibility of mastoid complication.

The change from a serous to a purulent or mucopurulent secretion seems to depend mainly on insufficient removal of the fluid. Hence a late spontaneous or operative perforation yields pus at once. If the drainage is not perfect by reason of some neglect the unfavorable change in the character of the fluid will take place speedily. Secondary infection through the meatus with other bacteria may also occur later on and prolong the disease. But during the earlier period this does not seem to be common.

The treatment by aseptic drainage requires, therefore, skilful supervision in order to be successful. But when successfully carried out it has yielded the quickest result and the mildest course. In no

case has the author seen any complication as long as he succeeded in keeping the discharge serous.

In the case of a purulent discharge due to a late perforation or insufficient care in the change of the dressing, he has found gauze drainage as satisfactory as any other mode of treatment. But since thick pus is not absorbed as freely as a serous fluid, the special superiority of the treatment is not as apparent as in those instances in which its early and proper use prevented purulency of the discharge throughout the entire course.

CONTRAINDICATIONS TO MATERNAL FEEDING.

While no one doubts that maternal feeding is the best for the child in most cases, occasionally it has to be stopped. NORTHRIDGE, in the *Brooklyn Medical Journal* for January, 1904, emphasizes this fact by the statement that it should always be considered a very serious proposition to wean an infant under eight months of age, especially in the summer-time. Its life may pay the forfeit.

The mother also must pay the price if she breaks nature's law in this regard. She is much more prone to uterine diseases, diseases of the breast, cancer, frequent child-bearing, and besides loses the pleasure of nursing her own child.

Normal maternal lactation being nature's method, we should be very sure that this has become abnormal beyond any known remedy before we advise or consent to the cessation of maternal feeding.

Because a baby does not thrive upon the breast is not in itself a sufficient reason for weaning. Perhaps it is fed too seldom, or for too short a time, or too frequently, or for too long a period, or the cause may be inherent in the mother or in the milk, and may be removable. The trouble should be searched for, and if possible overcome. Sometimes the cause being eradicated, nursing and nutrition go on again normally.

Because a mother is nervous or frail, or given to fits of anger, or unhappy, or does not wish to nurse her baby—these are not necessarily good reasons for weaning. They should be made light of, from the standpoint of the physician. Let the mother take the full responsibility of weaning if she insists, unless weaning after careful effort to nurse is deemed advisable.

From the author's own experience and observation he is convinced that earnest effort would result in many mothers nursing their babies where aforetime they deemed themselves incapable of doing so.

Some women, not knowing what joy they are missing, simply refuse to nurse their babies, often from some selfish motive, and "when a woman won't, she won't." These unfortunate babies must be wet-nursed or brought up artificially, and some of them die.

The following are some of the reasons given for weaning, which in the great majority of cases do not constitute real contraindications:

Cracked nipple.
Hyperesthesia of the nipple.
Ulcer of the nipple.
Caked breast.
Mother unwilling to nurse her child.
Irregular habits on the part of the mother.
Mother ill-tempered.
Mother given to fits of depression.

The physician should be able to overcome these by treatment and persuasion. If he cannot overcome the cause it becomes a real contraindication.

The following are some of the conditions which may in certain cases constitute good and sufficient causes for weaning; the doctor must judge in each case according to the facts, and his decision should be final as to whether the nursing shall go on or not:

Abscess of the breast.
Insufficient supply of milk.
Child losing weight or not gaining.
Indigestion in child.
Frequent emissions.
Syphilis in the mother; child apparently free.
Diseases of the nervous system.
Chronic diseases of the skin.
Menstruation.
Pregnancy.

The author's experience as to pregnancy and menstruation is as follows: In many cases menstruation does not interfere in the least with the nursing, in effect, either upon the mother or the child. It sometimes causes the mother to feel "dragged out" somewhat. Sometimes the milk will

disagree with the child temporarily. In such a case it is wise to give the baby an artificial food during the menstrual week and keep the breasts pumped out occasionally each day. If either mother or child appears to be gravely disturbed, of course the nursing should cease at once.

INTESTINAL ANTISEPTICS: THEIR USES AND LIMITATIONS.

STORCK gives his views as to this question in the *Journal of the American Medical Association* of December 26, 1903, and in the course of his remarks states that a drug which gives much promise of efficiency is benzoyl-acetyl-peroxide (acetozone). Drs. Freer and Novy have made extensive researches into its germicidal action, and have reached results whch prove it a superior germicidal agent. It has been used by Dr. Wasdin and others in the diarrhea of typhoid fever, and Drs. Freer and Marshall report good results in cholera and dysentery.

Dr. R. T. Strong, of the Biological Laboratory, Manila, says: "Quinine in enemata has usually given the best results in the treatment of amebic dysentery. The advantages of acetozone over quinine are quite apparent. It is capable of killing amebæ even in dilute solutions, and attacks the bacteria which are present in the intestines, greatly reducing the number of microörganisms in the stools."

The writer's experience is confined to the use of acetozone in six cases. In two cases of intestinal tuberculosis the bowel condition grew better after the third day, and the patient gained in strength and weight. In one case of advanced pulmonary tuberculosis accompanied with intestinal lesions, no improvement was noticed. In three cases of typhoid fever with diarrhea the improvement of the bowel conditions was everything that could be desired, and the patients made excellent recoveries. The stools were almost completely deodorized after forty-eight hours.

The group next in order is the sodium series. When preparations of salicylic, benzoic, or carbolic acid are desired to be given by the mouth for any condition in the duodenum, or high up in the small intestine, the writer prefers the sodium salts of the above mentioned acids as antiseptic agents, his preference being sodium salicylate. Holt thinks well of this salt in the summer diarrhea of children.

Now we come to the bismuth, magnesium, calcium and aluminum series. Owing to the feeble antiseptic action of the salts of the last three drugs, they have not met with much favor as intestinal antiseptics.

The salicylate and subgallate of bismuth are agents of some value. When an insoluble preparation is indicated, as in the treatment of tuberculous ulcer in the lower part of the ileum and of the cæcum, bismuth betanaphthol answers a good purpose.

Among the miscellaneous series carbon disulphide may be first considered. Dujardin Beaumetz says of this agent: "I have obtained most satisfactory results from the point of view of intestinal antiseptics." He further claims it to be superior to all other medicaments in favorably modifying putrescent intestinal processes in typhoid fever. Beaumetz cites M. Ckiandi-Bey and Sapelier concerning the non-toxicity of carbon disulphide.

Oil of turpentine has given marked results in the treatment of some cases of tuberculous ulcer, especially in cases with pronounced flatulence; improvement in the condition of the stools and in the general condition of the patient took place rapidly.

As for boric acid, it has not yielded any results in the writer's hands.

Where fermentative conditions, marked by meteorism and tympanites, are very active in the bowel, sulphurous acid is, for the most part, safe and fairly sure.

While reliable as an antiseptic, formic aldehyde causes much burning, even when used in weak solutions.

Where the seat of the disease is in sight and may be easily reached by applications, nitrate of silver proves a valuable antiseptic as well as astringent. Otherwise, owing to its rapid change, it is of doubtful antiseptic worth.

Up to this time, in the treatment of amebic dysentery, no other agent has given as good results as quinine, the writer asserts, and he has used both the sulphate and hydrobromate, and given preference to the latter.

Owing to its easy and rapid decomposition, nothing much could be expected of

such a chemical as potassium permanganate as an intestinal antiseptic.

In doses large enough to be of benefit as an antiseptic, iodoform irritates the stomach.

Lactic acid, which for a long time enjoyed a reputation in the treatment of the summer diarrhea of children, has been largely replaced by hydrochloric acid. Vaughan says, in speaking of the summer diarrhea of infancy: "The only digestive secretion which is known to have any germicidal effect is the gastric juice (hydrochloric acid); therefore, if this secretion be impaired, there is at least the possibility that the living germ will pass on to the intestine, will there multiply, and will, if it be capable of so doing, elaborate a chemical poison which may be absorbed." In conditions of the stomach where there is a deficiency of hydrochloric acid in the gastric juice, and where in consequence putrefactive changes in the intestine take place, hydrochloric acid is indicated; for, as the experiments of Hammarsten show, "putrefaction does not occur in the small intestine as long as the contents are strongly acid."

Whenever an eliminant and antiseptic is required at the same time, calomel is the agent to be employed. It is one of the safest and surest agents in fermentative and putrefactive conditions existing in the small intestine. Ox-gall, especially when combined with calomel, is of value in fermentative conditions due to deficient flow of bile.

THE TREATMENT OF ALBUMINURIA.

PYE-SMITH in the *Clinical Journal* of December 16, 1903, states that in cases of albuminuria the most important thing of all is to keep the surface of the body warm; and to see that the subjects of this condition are clothed in wool from the neck to the feet. We know boys are apt to be careless in this respect, and schoolboys particularly so. The second thing is to forbid bathing in the open air, or wherever the persons are tempted to stand about instead of at once rubbing themselves down and getting their clothes on. The next point is to restrict the amount of meat, and to entirely prohibit all stimulating liquors, though happily in modern times the majority of boys are brought up without beer or wine. When albumin continues it is very beneficial for the patient to have a hot bath before going to bed. That will often prevent the morning albuminuria which, although not indicative of organic disease, is certainly in many cases a precursor of it. At the same time it is important to keep the bowels open; the effect of a regular action of the alimentary canal is undoubtedly to ease the kidneys.

As to drugs, the only one is perchloride of iron. These lads are generally pale as well as thin, and they improve rapidly under the administration of the iron. If the parents can afford it, it is desirable that the youth should spend the next winter in the South. Where that cannot be managed, if you have a patient who is intelligent and will follow out your advice as to clothing and feeding, and abstinence from chills, and taking no liquor, it is astonishing how many of these cases will get perfectly well. Then, in eight or twelve months from the first examination for life assurance, they can appear again, and you will be able to insure them with a good conscience. On the other hand, the writer has more than once noticed youths who came thin and pale, and with a little albumin present in the urine, who did not develop Bright's disease, but who never became robust, healthy men, and in several cases finally developed tubercle. Therefore one should be very careful in such cases not to minimize the significance of the albuminuria, but to recognize that it shows a certain vulnerability of constitution.

The old plan of sending every consumptive patient on a voyage was often a mischievous one, for we must remember that those who run across the sea do not always change their mind or their body either, and that a perfectly salubrious climate does not exist on this earth. So we must not promise certain benefit from living abroad to those of our patients who are rich and able to go to any climate we recommend, or need commiserate those who are obliged to stop in the country to do the best they can under our advice. As in cases of phthisis, so also in albuminuria, some of our best cases have been amongst our poorer patients, in hospital or otherwise, to whom it would be cruel to prescribe leaving the country, or very often even leaving the town or district in which

they live, and who nevertheless by care, and regimen, and proper clothing, and regulations as to drink, do finally reward our efforts by recovering. On the other hand, one has known people who had every opportunity, and who yet unfortunately have succumbed to Bright's disease. The author recalls a patient living in the north of England, a wealthy man, who had Bright's disease, who asked him what he should do the next winter, and was told that of all places he could go to, probably Egypt was the best. He went there, and for a time enjoyed the sun and the dry, clear air very much; but it was afterward learned that he went out one day when a cold wind was blowing, after there had been some rain, caught a chill, which ended in pleurisy, and so he died just as he might have done if he had stayed in England. Since the British have obtained possession of Egypt it is said that they have taken their climate out there, and it seems that in this instance it was true.

On the whole, however, increasing experience gives us increasing hope, not only of relieving but of curing patients suffering from albuminuria. Not only in the earliest stages of Bright's disease, but even in advanced cases, it is wonderful how much power of recovery is sometimes met with. At one time the best authorities believed that chronic albuminuria was "as fatal as phthisis." Now it is believed to be as curable as phthisis.

AN UNUSUAL CASE OF POTASSIUM IODIDE IDIOSYNCRASY.

Cases of idiosyncrasy to the effects of drugs are always of interest. In the *Medical Record* of January 30, 1904, GATHMANN reports a case of this character.

The patient had been ordered a saturated solution of potassium iodide, and took three doses of ten drops each, in water, on the first day; the dose was increased by one drop daily, so that on the fourth day he took three doses of thirteen drops each. On this day his finger-tips showed a slight cyanosis, and as no reason for this condition could be found in any of the vital organs, the drug was discontinued for the entire fifth day. Although this local cyanosis thereupon disappeared within twenty-four hours, the writer was not thoroughly convinced that this was not a mere coincidence, and that the symptom had really been due to the iodide.

So, on the evening of the sixth day, one single dose of fourteen drops was given the patient, and next morning he was afflicted in the following peculiar and even alarming manner: There had occurred during the night, after this single dose of fourteen grains, a diffuse ecchymosis under the entire skin of all his fingers and thumbs, so that at first sight they appeared exactly as if he had dipped his fingers, up to the metacarpophalangeal joints, into a pail of indigo dye. The discoloration stopped very abruptly at these joints, a few dark-red specks at its upper limit being noticed on closer inspection only. The fingers, in addition, were numb, cold, stiff, slightly swollen, and very painful. The little finger of each hand was most severely affected and almost absolutely black; the process lessened very slightly in each succeeding finger, so that the thumbs were of a very dark blue, rather than black color. The metacarpal region of each hand was normal in color, though just a little swollen. In addition, the extreme tip of the nose was similarly affected, though less severely. The toes, however, were and have remained entirely normal, and, in fact, excepting a few isolated, mild purpuric spots on the thighs and on one arm, the condition was confined altogether to the fingers and the tip of the nose.

Under the assiduous application of warmth and friction (and discontinuing the potassium iodide, of course), the fingers very gradually became less painful, the swelling subsided slowly (though leaving blisters on nearly all the middle phalanges), natural warmth and motion returned, and gradually the dark color faded, so that it was nearly three days before the patient and his friends felt quite reassured that the fingers and nose were safe from gangrene.

While the writer has found occasional occurrences of irregular ecchymotic spots, "mostly confined to places below the knees," and due to large doses of the drug, mentioned in literature, yet nowhere has he found the description of so intense and yet sharply circumscribed an ecchymosis of such peculiar and sym-

metrical distribution from this drug, and especially in the small dose named. There was no gastric irritation, coryza, acne, nor any of the other symptoms of iodism.

Neither his occupation (tailor), nor his past history, nor any other circumstances, seem to afford a clue why his feet should have remained perfectly normal while his fingers suffered so intensely.

THE TREATMENT OF OZENA OR ATROPHIC RHINITIS.

LACK advises the following plan of treatment in the *Clinical Journal* of December 23, 1904:

The important point to be aimed at is to cleanse the nose thoroughly and to keep it clean. The nose must be very carefully syringed. Any solution may be used; salt and water, a teaspoonful to the pint, is as useful as anything. It is not a question of antiseptics, but of mechanical removal of the discharge. The solution is best injected into the nose with a rubber syringe. Having washed the nose out, it is well to inspect it and to detach or to syringe away any crusts that remain. After this it is a useful plan to rub the mucous membrane all over with pledgets of wool on a probe, as in this way thorough cleansing is insured. The most important part of the treatment is, however, the next step—namely, to pack the nose with strips of cyanide gauze. A strip an inch wide and twelve to twenty inches long should be inserted, and the patient can be taught to do this for himself. This packing prevents the entrance of air into the nose, prevents the discharge drying, and prevents its decomposition. The result is that the discharge remains fluid, the nose no longer fills with tenacious crusts, and can be quite easily cleansed by simple syringing. This method is similar to that of Gottstein, who introduced rolls of wool into the nose with the idea of irritating or stimulating the mucous membrane, and so producing a more copious fluid discharge. The principle upon which his treatment was founded was wrong, and the method was painful. The use of gauze, as above described, is quite painless, is easily carried out by the patient, and is founded upon rational principles. The gauze itself inhibits bacterial growths, and yet is non-irritant. In the majority of cases it is sufficient to syringe the nose twice daily, but the packing should be worn continually, being only removed for syringing.

It may be objected that patients will not carry out this treatment, but it will be found in practice that patients like it, and that they are much more comfortable when the nose is packed. Even if it were uncomfortable, the majority of patients would do anything which promised them a hope of relief. Should it give rise to headache or discomfort at first, toleration is soon obtained by perseverance.

Again, it may be objected that mouth-breathing, which this treatment necessitates, is injurious; but in these cases it is far better for the air-passages and lungs that the air reaching them should pass through a healthy mouth than through an extremely unhealthy nose.

Another result worthy of mention is the effect of the packing upon the ears. Many patients suffering from Eustachian obstruction and middle-ear disease as the result of ozena are markedly improved by this treatment.

THE TREATMENT OF ENTERIC FEVER.

In the *London Practitioner* for January, 1904, MOORE states that turpentine fulfils many indications in enteric fever. Not only is it an excellent diffusible stimulant and a valuable antiseptic, but it also relieves chest complications, controls diarrhea, checks meteorism, and stays intestinal hemorrhage. Turpentine is therefore one of the best all-round remedies we possess for the treatment of enteric fever. It is conveniently prescribed in capsules or perles containing 5 to 10 minims of either turpentine or terebene. Another good way of prescribing it is with spirit of nitrous ether, as follows:

℞ Spiritus terebinthinæ, f℥ij;
Spiritus ætheris nitrosi, f℥ij;
Spiritus chloroformi, f℥ij;
Misturæ amygdalæ, ad f℥vj.

M. Ft. mistura. Signa: Shake the bottle. Half an ounce for a dose.

Caution is necessary in the exhibition of turpentine in the presence of albuminuria, or when there is disease of the kidneys or bladder.

While it is always an alarming symptom, intestinal hemorrhage is by no means necessarily followed by grave results. In

the many cases which the writer has seen of profuse intestinal hemorrhage in enteric fever, the impression left upon his mind, he asserts, is that an unexpected and surprising improvement in the patient's state sometimes follows a single copious bleeding, whereas repeated bleedings of less amount nearly always end in death. Should blood pass from the bowels in the third or fourth week, we naturally regard the symptom as a danger signal, a warning of impending perforation. For the source of the hemorrhage at that stage of enteric fever is almost certainly the blood-vessels running beneath the transverse muscular fibers of the intestine.

All authorities agree that the first and chief indication in intestinal hemorrhage is absolute rest. This is secured by withholding food for several hours, or by giving only small quantities of whey and egg-water, and by the free exhibition of opium, preferably in the form of hypodermic injections of morphine. Ice may be sucked, and an ice poultice, or a bladder containing broken pieces of ice, may be laid over the right side of the abdomen, as recommended by Murchison. The same excellent authority found the following mixture almost invariably effectual for stopping the bleeding:

℞ Acidi tannici, gr. x;
Tincturæ opii, min. x;
Spiritus terebinthinæ, min. xv;
Mucilaginis acaciæ, f℥ij;
Spirit. chloroformi, min. xx;
Aquæ menthæ piperitæ, ad f℥j.

M. Half to all of this quantity at one dose.

LUMBAGO: ITS LESSONS AND ANALOGUES.

Sir WILLIAM GOWERS in the *British Medical Journal* of January 16, 1904, gives us advice as to the treatment of lumbago. He says that aperients are of the first importance in all rheumatic and pseudogouty cases, and nothing is of so much value as salines. They free the system of bile far more than the so-called "cholagogues." Taken into an empty stomach they seem not to be absorbed, but to pass on into and through the intestine, augmented by the exosmosis they excite, and they carry away the bile they find in the bowel. This has done what digestive work it had to do, and much of it would simply pass back into the blood, through the liver, and increase the amount of harmful matter in the general circulation. At least this is understood to be the reason why salines do remove bile abundantly, and improve the general state. But if a saline is taken when the stomach contains food, it seems simply to mix with this and to be absorbed, and its valuable "flushing out" action is not obtained. Moreover, it seems to pass through the stomach more readily, and to excite osmosis and peristalsis in the bowel more effectively if concentrated than if dilute; and thus the stronger aperient waters act better than those that are dilute. The writer adds, parenthetically, that what he has said is quite consistent with the mild aperient influence obtained by some persons from a glass of plain water in the early morning. That which differs in any way from the normal character of the intestinal contents may have a similar effect; that which is more dilute may act like that which is less dilute, just as the bladder is irritated by watery urine as well as by that which is concentrated.

The medicinal agents which have most effect on articular rheumatism seem to have far less influence on rheumatic muscular fibrositis. The salicylates, for instance, seem to do little good, except in the most acute form. In this it is very difficult to discern with precision the effect of any therapeutical measure. We cannot try experiments in severe suffering. We can very seldom secure the essential condition for observation, namely, that the agent to be tested shall be used with no other change in the influences to which the patient is exposed, that no other attempt to do good shall be made at the same time. Hence doubt must attach to many of our records of apparent good, and they need to be confirmed by subsequent observations before they possess weight. The writer mentions this because this morbid state is one of those in which the opportunity for increasing and making sure our therapeutic knowledge comes chiefly to the general practitioner. But we may give the salicylates, or salicin, or aspirin. The salicylate of potash or lithia seems a more reasonable salt to use than the more common salicylate of soda. The salicylates have the disadvantage that we cannot obtain, in combination with them, the diuretic influence of nitrous ether. The writer believes that most good is obtained in the

early stage from nitrous ether, citrate of lithia, and colchium, with which small doses of perchloride of mercury may be combined if the affection is of considerable intensity.

The developed brachial form is extremely obstinate, especially when the fibrositis has spread to the nerves or joints. It is often difficult to perceive that any treatment has a marked effect if the opportunity of the early stage has been allowed to pass. The malady lessens, and passes away in time, leaving only such lasting effects as neuritis or arthritis may have caused. Good is certainly done by superheated air, but the applications have to be continued for weeks, and the accessory incidental disturbance seems to lessen the benefit derived.

The traumatic form of tendinous fibrositis, when it settles down to a satisfactory condition, with pain on any tension, and often some tenderness on pressure, resists almost all treatment. It also passes away in time, but unfortunately the time is long before the tendency to subside manifests itself. If any constitutional condition seems to coöperate in perpetuating the effects of injury, this of course should be treated. It is chiefly to be discerned when fibrositis is set up by slight habitual strain. Rest is important, but is not easy to maintain for an adequate time.

Counter-irritation sometimes lessens the pain, and the actual cautery is certainly the most effective form. A local measure that often does good is the deep hypodermic injection of cocaine, repeated daily for two or three weeks. It unquestionably promotes the subsidence of the sensitiveness, provided the ease obtained is not abused by increased exertion. Probably eucaine would be equally effective.

HOW TO TREAT A CASE OF INSANITY.

JONES in the *Lancet* of December 28, 1903, gives directions as to the treatment of the insane. He points out that the remedies which favor sleep are either direct, which act primarily, or indirect, which are not in themselves narcotics, but favor sleep by removing disturbing elements. Among the latter is iron, which by relieving anemia also relieves the restlessness and sleeplessness often accompanying it. Iron has exercised marked benefit in cases of epileptic insomnia. Digitalis, by adding tone to the cerebral arterioles, effectually prevents passive congestion in lax arteries when the patient occupies the recumbent position; it also probably causes a due amount of cerebral anemia. Tartar emetic lessens arterial pressure and acts as a vascular sedative; it is very useful in the restlessness of sthenic inflammations, and when combined with opium it is very effective in lessening sthenic delirium. Alcohol, administered with easily digestible nourishment during periods of exhaustion, especially just before retiring to rest, is a most valuable sedative.

Of the direct sedatives, bromide of potassium is certainly the simplest if it be not the most efficacious. It is very useful in the insomnia of overwork and the restlessness arising from reflex affections; it can be given alone in 20-grain doses three times a day or in combination with chloral (15 grains), which is the best remedy for simple insomnia, and there are no unpleasant after-effects from the combination. If chloral hydrate is prescribed for old people care should be taken to have a hot-water bottle in the bed and the feet kept warm. Opium has the disadvantage of (1) losing effect from the toleration which follows repeated doses, and of (2) setting up digestive troubles, but it is very useful as an anodyne, either in 10-minim doses of the tincture, or in subcutaneous injection of morphine, one-sixth to one-half of a grain. Opium is very suitable in cases of sleeplessness in restless old people, and seems to act on them as a sedative stimulant. Sulphonal in 20-grain doses three times a day, taken in warm milk or beef tea, acts as a marked muscular depressant, but it is apt to cause intestinal trouble, and its action is cumulative. It is best given for continuous excitement, for a few days at a time, and then withdrawn. To control sudden violent aggressive motor excitement it is of no use. Some chronic noisy cases do very well with a dose of sulphonal at night. Trional in similar doses is less depressant, but is also an intestinal irritant owing to its insolubility. There is no better remedy than a hypodermic injection of hydrobromate of hyoscine, from 1/200 to 1/50 of a grain. The effect is very fleeting, but it is immediate; the patient is as excited as ever the next day, or even in a few hours, but care should always be taken to visit the patient frequently after the injection, and it may be

advisable to combine with the hyoscine a subcutaneous dose of strychnine. Hyoscine is used less to procure sleep than reflexly to cause muscular depression. Paraldehyde in one-drachm doses is a valuable sedative for old people, or those in whom the circulation is feeble. It does not weaken the heart; the pulse gains in strength under its action; it is not an irritant, but on the contrary is usually borne well by the stomach; it is superior to chloral for the insomnia of alcoholic delirium; and as a hypnotic in cerebral affections it is most useful. Noisy paretic dementia, the multiform manifestations of hysteria, and the convulsive neuroses are all greatly improved by it, and it can be taken alone, in water, or with milk or beef tea. Cannabis indica, in combination with bromide of potassium, has been recommended by some for epileptic excitement, nervous insomnia, or acute mania, but the author's experience fails to recommend it. In some women it produces very unpleasant hallucinations, and the benefit, reported in the experience of others, may perhaps be due to the simple bromide, often used in combination with it. Bromide of potassium in large doses of from four drachms to one ounce has been recommended for maniacal excitement. Perhaps the best cure for sleeplessness as well as motor excitement is open-air exercise. Sleep can often be obtained by special attention to diet, and artificial feeding may become most important.

When a patient refuses food, gentle and firm persuasion may overcome the refusal; beyond this the nurse should never go. No apparatus for forcible feeding should be employed by any other than a medical man—who chooses his own method, either by the mouth or with the use of the nasal tube. Feeding is the sheet-anchor of treatment in many cases of early toxemic insanity, such as the puerperal form, and artificial feeding should be resorted to early and often, during every quiet interval and at each opportunity, to compensate for the profound exhaustion—often intense—caused by restlessness and maniacal delirium.

One of the most important points in treatment is attention to the state of the bowels, for constipation is a most prevalent irregularity in the insane. Calomel in doses of ten grains is easily borne and is probably the best purgative. Croton oil, even in as large a dose as two minims, is often ineffective. It is difficult to get the insane to take tablets or pills, and almost impossible to give these with food—even if it were desirable. Epsom salts, or some of the foreign well waters, such as "Hunyadi Janos," are very effective when given daily and in free doses—generally twice or three times the dose required for a sane person.

Restraint, to which reference has been made, should never be permitted in a private house; when it appears necessary, the time for home treatment is over and asylum care is urgently indicated. Asylum treatment often renders unnecessary the excessive and damaging use of narcotics, calmatives, and restraints, which are so often used to prevent the noise and destructiveness of patients treated in their own homes. The treatment in asylums consists in diverting the morbid mind into healthy channels, the removal of disturbing causes, and the encouragement and example to industry afforded by those in attendance. Perseverance, attention, uniform kindness, yet firm determination, are characteristics always appreciated in the asylum nurse. It is not too much to say that the regular routine of asylum life tends to favor regular processes of thought and reflective action, which are often the first symptoms of recovery in patients who have suffered from delusions. In the asylum there is constant but not too direct watchfulness and supervision, combined with forbearance and respect. These characteristics form what is usually termed the elements of psychic or moral treatment, and they are invaluable in asylum as well as in home treatment. They constitute nothing that is new, and they are the basis of the practice of general as well as asylum physicians.

THERAPEUTIC ADVANCES.

In a summary of the therapeutic advances of the year 1903 the *Lancet* of December 28, 1903, reminds us that the marked influence that adrenalin exerts on the blood-vessels and upon the blood-pressure, constricting the former and increasing the latter, has naturally suggested its employment in various conditions of the eye in which the effects might be expected to prove beneficial. Thus, Dr. A. Yvert, Dr. Wessely, Dr. Konigstein, Dr.

Marques, Dr. A. Darier, whose death has so recently occurred, and many others, speak in high terms of its value when applied to the congested conjunctiva in a perfectly sterilized solution of 1 part in solution in 1000 parts of water. The local anemia it occasions can be augmented with cocaine, and the combination of the two remedies appears to be of greater service in acute catarrhal affections, in rheumatic conjunctivitis, and in gouty congestion of the conjunctiva. Adrenalin is also useful in iritis and by its depressor action on the blood-pressure in cases of glaucoma, whether subacute or intermittent, and in cases of embolism of the retinal artery. It appears to be contraindicated in such operations as iridectomy, and cataract where the globe is opened, both Dr. Darier and Mr. Stephenson having noticed intraocular hemorrhage of a serious character. It has been injected subconjunctivally, but it must not be forgotten that it is a very dangerous poison, and it is right to add that Mr. A. F. MacCallan and others have reported several cases of glaucoma in which the use of adrenalin caused increase of tension.

SCIATICA.

The *British Medical Journal* of January 16, 1904, quotes a plan of treatment devised by Dr. FEDDERSEN, of Wiesbaden. Acute cases should be put to bed, and the affected limb wrapped up in wool, with the knee flexed by means of a small cushion. The diet should be of warm liquids, alcohol and strong tea and coffee being avoided, and a mild diaphoresis being promoted by the use of warm demulcents. The bowels are to be well opened with castor oil. Dr. Feddersen's main medicament for this class of cases is sodium salicylate in large doses for four or five days; if this is ineffectual he uses one of the numerous substitutes, especially aspirin. He continues the drug, in smaller doses, for some time after the pain is over. Very intense pain calls for an injection of morphine over its acutest seat.

The subacute form tends to spontaneous cure; the most useful adjuvant drugs are potassium iodide, oil of turpentine, methylene blue, and arsenic; fly-blisters may also be most valuable. For the neuritic form galvanism commenced at the end of the second week is recommended, the cathode being placed over the sacrum on the affected side, and the anode over the most tender spot; a warm bath is also of great use. If the disease becomes chronic the general principles of treatment are to improve the arterial blood-supply to the affected limb and to restore abrogated function by the systematic use of physical methods. The author is, not unnaturally, an advocate of the Wiesbaden hot baths; he recommends the simultaneous application of the hot douche to the sacrum, the hip, and the affected nerve. Passive movements should be employed at first, then successively active movements and resistance exercises. The passive movements may at first produce an increase of pain, but this is temporary and to be disregarded. Much good results from stretching the nerve by forcible flexion of the hip, the knee being kept extended. Muscular atrophy indicates the faradic current, which should be just strong enough to cause muscular contraction without painful tetanus. Many other forms of mechanical and electrical treatment which have been much vaunted are of value simply by their "suggestive" use. As an aid to cure and in the prophylaxis of recurrences, Dr. Feddersen recommends the morning use of a tepid to cold sponge bath—known in Germany as "the English sponge bath."

THE USE OF PURE CARBOLIC ACID IN THE TREATMENT OF SMALLPOX.

NEECH and HODGSON report to the *Lancet* of December 28, 1903, their results from this plan of treatment. Briefly, the following are the results of their extended experience of this remedy. Altogether they have employed this method of treatment in 136 cases. Of this number five died, which gives a death-rate of 3.6 per cent. This compares very favorably with the results obtained elsewhere. The epidemic, though not so virulent as some, was by no means a mild one, as out of the 136 cases 22 were of the confluent type, 12 were semiconfluent, and 103 were discrete. Of the latter 15, though discrete, were very severe cases. The patients on the whole were anything but efficiently vaccinated, so that the character of the disease and the modifying effects of vaccination did not materially contribute to this low mortality.

The three unvaccinated children who died were all suffering from severe confluent smallpox; one was a baby whose mother was suffering from smallpox when delivered. The 27 unvaccinated cases above five years included some very severe ones, but the only fatal case was a chronic alcoholic who succumbed to heart failure following bronchopneumonia in the convalescent stage. Amongst the vaccinated the death was in a case of hemorrhagic smallpox, which is almost invariably fatal.

The method adopted was that first mentioned—namely, to apply the pure liquid caroblic acid with a small camel's-hair brush to the vesicles over a certain area of the body each day, commencing with the face and head, until the whole of the vesicles had been touched. These applications were continued until the vesicles showed signs of drying up or of aborting. Some considerable time is required to do this as it should be done, carefully and thoroughly. Care must be taken to avoid the acid running on to the healthy skin.

Although a careful watch was kept for the appearance of toxic symptoms, carboluria was noticed in only two cases. Curiously enough, both belonged to one family, so that idiosyncrasy might possibly have had something to do with it, and it is quite possible that the acid may have been more freely applied than is usual or necessary in at least one of these cases. In some cases only one side of the patient was painted with carbolic acid, and the other side was either left alone or treated with other local applications, such as carbolic acid with camphor, guaiacol in olive oil, or formalin. In all such cases it was plainly seen that carbolic acid gave the best results. This was thought to be the simplest way to find out which drug applied locally gave the best results, especially as types of smallpox vary so in vaccinated persons. The application of the acid caused very slight and transitory pain and relieved the intense irritation. The effect appeared to be local, the pustules rapidly shriveled and scabbed, and the further development of the papules and vesicles was either prevented or if not aborted comparatively little discharge resulted. In fact, all the vesicles had formed into scabs in from five to ten days after treatment, according to the severity of the cases, and in from ten to eighteen days the scabs had fallen off, except of course those in the palms of the hands and on the soles of the feet. The ulceration of the skin in the pustular stage was practically prevented, so that dermatitis with cutaneous and subcutaneous edema was lessened, and the tendency to the formation of scars was not nearly so great. The offensive odor from the eruption was entirely absent, and to a certain extent the application kept the patients clean. The absorption into the system of septic material from the pustules is either prevented altogether or is only very slight. This along with the lessening of the process of ulceration abolishes the secondary fever or renders it very mild. The temperature generally kept at a low level after the appearance of the pustular stage, and was never much above 102° F. even in confluent attacks in unvaccinated persons, and was normal long before it usually is in untreated cases. Delirium was very infrequent, and the pulse was not markedly increased, as is usually the case when the pustular stage is reached. The risk of infection by aerial convection is also considered to be much lessened, and a patient can be discharged with a greater feeling of safety a week or a fortnight before the usual time, as the treatment cuts short the disease to that extent at least. There was an entire absence of complications, such as multiple abscess, etc. The early removal of the scabs was effected by means of carbolic oil bread poultices.

RABIES.

Those who still deny the existence of such a disease as hydrophobia will no doubt be interested in the report by BRAWNER (*Atlanta Journal-Record of Medicine,* November, 1903), of 150 patients who have received the Pasteur treatment at the Georgia Pasteur Institute, all the cases, with the exception of one, being treated successfully.

Of those bitten on the face, the animal was demonstrated rabid by the inoculation test in eight cases, and in three cases by other animals taking the disease from the bite of the same animal. Of those bitten on the hands and bare feet, the dog was demonstrated rabid in thirty-nine instances. Of the total number of cases treated the dog was demonstrated rabid by the inoculation of rabbits in fifty-three cases, and by other animals taking the

disease in eleven cases. The dogs had typical symptoms in eighty-one, and escaped observation in six cases. The youngest patient treated was two years, the oldest seventy-two years of age.

The only patient unsuccessfully treated was an old man who had been bitten severely in the eye, through the nose, and on the lip, in a region supplied by many nerves.

At the Pasteur Institute at Paris the mortality has averaged one-half of one per cent, which is about the percentage lost by all the other institutes. Of those not receiving the Pasteur treatment it is said that at least 18 per cent died.

During the past three years Brawner has compiled a record of about 250 persons bitten by rabid dogs in the Southern States and by those supposed to have been rabid. Of these 170 received the Pasteur treatment, and only one such died. Of the remaining 80, some of whom resorted to that magical substance, the madstone, 16 died, or 20 per cent.

POSTOPERATIVE CYSTITIS IN WOMEN—PROPHYLACTIC TREATMENT.

BAISCH (*Münchener medicinische Wochenschrift,* Sept. 22, 1903) states that postoperative cystitis is produced always by bacteria which have been introduced into the bladder during catheterization. In order for cystitis to occur, an essential etiological factor is the presence of coexisting traumatic lesions of the bladder, or partial retention of urine. The bacteria which produce cystitis (staphylococcus, streptococcus, and bacillus coli) may be introduced into the healthy bladder without causing inflammatory changes.

In order to prevent postoperative cystitis, catheterization should be avoided whenever possible. In the cases in which retention of the urine absolutely demands the use of the catheter, repeated catheterizations may be avoided by injecting into the distended bladder 20 cubic centimeters of a sterilized two-per-cent solution of boric acid in glycerin. In the majority of cases this procedure is followed by an evacuation of the bladder, without tenesmus, in from five to ten minutes, and the patient thereafter is able to urinate spontaneously. In the cases in which the catheter must be used repeatedly, each catheterization should be followed by copious irrigations of the bladder with three-per-cent boric solution until spontaneous and complete evacuation of the bladder is reëstablished.

NON-MALIGNANT DISEASE OF THE ILEOCAECAL VALVE.

SCOTT (*American Journal of Obstetrics and Diseases of Women and Children,* Nov. 19, 1903) states that with the exception of two cases reported and operated upon by Mayo, only eight cases of non-malignant stenosis of the ileocæcal valve have been reported, and the latter were only diagnosed at autopsy.

The symptoms and signs of contracted ileocæcal valve are quite obscure, there being no pathognomonic symptoms, but merely the combination of those noted in appendicitis and obstruction of the small intestine.

A chronic ileocæcal obstruction is more often taken for appendicitis than for chronic intestinal obstruction. There are several reasons for this: first, because the symptoms of appendicitis are more numerous and marked than those of intestinal obstruction; secondly, because appendicitis is itself of more frequent occurrence than either the intestinal or valvular obstructions; and thirdly, a large proportion of these cases suffer from a combination of appendicitis and ileocæcal contraction.

Among the more important signs and symptoms there have been noted periodical pain at McBurney's point with thickening of the tissues, sometimes to such an extent as to form a good-sized tumor; tenderness at the same point, sometimes accompanied by rigidity of the abdominal muscles; pain in the stomach; acid or gaseous eructations, and other dyspeptic symptoms; evidences of autointoxication; disturbances of the pulse; usually constipation, but sometimes diarrhea, followed by constipation; relief by enemata found to be inefficient, unless the ileocæcal valve is reached; evidences of dilatation of the lower end of the ileum, of which the most prominent symptom is the presence in the right iliac fossa of a tumor which comes and goes, usually accompanied by colic-like pains, sometimes disappearing with a gurgling sound. General asthenia is usually noted, and in severe cases there is fever and sometimes vomiting. None

of the symptoms mentioned may be obtained in every case, and a large proportion of them may be absent.

The majority of the author's cases have been either subject to stenosis in other parts of the alimentary tract, or have had typhoid fever. The author reports seven cases, in three of which the diagnosis was confirmed by operation. The operation in all three cases was performed through a gridiron incision. An incision three to four inches long was made through the ileocæcal valve in the axis of the small intestine. This incision was sewed up in a transverse direction similar to the Heinecke-Mikulicz pyloroplasty. The benefits of the operation were very marked and have persisted up to the present time.

BACKWARD LUXATION OF THE HIP-JOINT—A NEW METHOD OF REDUCTION.

ELGART (*Centralblatt für Chirurgie,* Aug. 22, 1903) describes a case of backward luxation of the hip-joint in which the ordinary methods of reduction had failed. He thereupon laid the anesthetized patient on the floor and had an assistant fix the pelvis by pressure on the iliac spines. Then, kneeling on one knee, the operator laid the dislocated extremity over his other knee, grasping the patient's ankle with one hand so that the lower leg served as a lever. By making downward pressure on the lower leg, a powerful traction was exerted upon the femur in a vertical direction. Inward rotation of the femur was secured during the above traction by turning the lower leg outward, while with the other hand the operator grasped the prominent luxated head of the femur and pressed it outward in order to facilitate the passage of the same over the lip of the acetabulum. The same object can be obtained in a corpulent individual by making outward traction on the proximal end of the femur. Adduction might also be obtained during this maneuver by the operator bending his knee forward, although this was not necessary in the author's case. Reduction was accomplished at the first attempt by this method. A word of caution might be given in regard to the danger of producing a fracture of the bones of the leg or of the neck of the femur, or of rupturing the capsule of the knee-joint.

SUBCUTANEOUS RUPTURE OF THE BILIARY PASSAGES.

According to HAHN (*Archiv für klinische Chirurgie,* Band 71, Heft 4) subcutaneous rupture of the biliary system results from the same forms of violence as those producing rupture of other intra-abdominal viscera. Gall-stones in the gall-bladder in one case, in the cystic duct in one, in the common duct in two, and adhesions around the gall-bladder in one case, have been noted as predisposing causes in the reported instances.

Rupture of the gall-bladder occurs more frequently than rupture of the bile-ducts. Lacerations of the gall-bladder generally present an irregular outline. In one case the serous coat remained intact and the bile escaped into the retroperitoneal space; in two cases the gall-bladder was torn from the liver. Tears of the bile-ducts usually involve the anterior wall. In five reported cases the common duct was torn asunder.

Rigidity of the abdominal muscles following immediately after rupture of the biliary system would be expected as a prominent symptom, but it never has been reported, probably because the patients have not come under observation sufficiently early. Shock and collapse, pain, localized or diffuse, which may or may not radiate to the right shoulder, pallor, anxious expression, and vomiting, are early symptoms which have been observed. Hemorrhage in uncomplicated cases is insignificant.

The symptoms of shock gradually subside; pain becomes localized in the hypogastric or right hypochondriac region; the patient becomes jaundiced; stools become clay-colored; and the physical signs of an effusion in the abdominal cavity are present.

In cases of laceration of the biliary system, the bile most commonly escapes into the peritoneal cavity, but it may escape into the retroperitoneal space. The amount of bile which escapes depends upon the extent and location of the laceration; 8 liters of bile was obtained by puncture in Landerer's case, and 14 kilogrammes in Uhde's case.

A small amount of bile is absorbed rapidly from the peritoneal cavity without producing peritonitis. The long-continued pouring out of large amounts of bile results in a typical form of peri-

tonitis which probably is produced by chemical irritation. Absorption of bile from the peritoneal cavity ceases after a few weeks, when, if extravasation still continues, the bile tends to accumulate without undergoing any special change. During the stage of absorption the patient presents the signs of cholemic intoxication, and thereafter the symptoms of acholia.

In twenty-eight cases reported by Courvoisier, jaundice was present in ten, being noted in conjunction with clay-colored stools in eight, but was never observed before the third day. Jaundice with normal colored stools is present in cases of rupture of the biliary system in which a portion of the bile flows into the intestine. If none of the bile reaches the intestine, jaundice and clay-colored stools are observed, and are the rule in cases of rupture of the common duct. Jaundice may be absent and clay-colored stools present in cases in which absorption is prevented by encapsulation of the extravasated bile. The presence of bile in the urine is also a variable symptom and was noted in two cases before jaundice appeared.

Enlargement of the abdomen from extravasation of bile was never observed before the third day. There was usually dulness in the right hypochondriac region; rarely the extravasation assumed the form of a free ascites. Frequently large collections of bile could not be diagnosed after the lapse of several weeks, or even months. Constant symptoms of biliary extravasation, which may appear as early as the first week, are rapid emaciation and exhaustion of the patient, due directly to the loss of bile. The reported cases in most instances have been characterized by an afebrile course and great rapidity of pulse rate. The diagnosis of rupture of the biliary passages was usually impossible during the first three or four days, and then at times was made only by exploratory puncture.

Laparotomy with evacuation of the extravasated bile and repair of the rupture offers the best prospect in these cases. Rupture of the gall-bladder should be treated by suturing the laceration, by suturing the gall-bladder wound to the parietal peritoneum, or by excision of the gall-bladder. In cases of injury to the cystic duct the wound should be sutured, or cholecystectomy performed. Rupture of the hepatic duct should be treated by tampon or direct drainage of the duct.

Wounds of the common duct are best treated by suture or tampon. In cases of complete division of the common duct, Courvoisier advises drainage of the hepatic and duodenal portions of the duct through the abdominal wound until sufficient time has elapsed for adhesions to form around the drainage-tubes, in the hope that when the drainage-tubes are removed the bile will again find its way into the intestine. Terrier and Auvray advise double ligation of the common duct and the performance of cholecystenterostomy. Choledochoduodenostomy has also been suggested for this form of injury.

In 1890 Courvoisier collected statistics on thirty-four cases of subcutaneous rupture of the biliary passages, about half of which were treated by repeated punctures to draw off the extravasated bile, with a fatal result in about two-thirds of the total number of cases. The author has collected thirteen cases which have been reported since 1890. Of these four died, in spite of laparotomy, seven recovered after laparotomy, one was cured by puncture, and one recovered spontaneously.

TORTICOLLIS—OPERATIVE TREATMENT.

WULLSTEIN (*Centralblatt für Chirurgie,* Aug. 15, 1903) thinks that the deformity persisting after division of the contracted sternomastoid, in long standing cases of torticollis, is due not only to the bony deformity which has developed, but is also contributed to by an elongation of the opposite sternomastoid. He believes that the best results in severe cases can be obtained without the subsequent use of orthopedic apparatus, by shortening the elongated cleidomastoid, at the time the contracted muscle is divided to an extent equivalent to the difference in length of the two muscles. This is usually from 4 to 8 centimeters in the more pronounced cases. The best place to shorten the muscle is just below the entrance of the spinal accessory nerve. This is accomplished by taking a tuck in the long axis of the muscle, sutures being introduced to hold the fold of muscle in position. Thus no nerve filaments are

cut, and the muscle fibers are not divided. The head is held in a position of over-correction by means of suitable bandages, until the shortened muscle is firmly united, slight movements being permitted after the twentieth day. The author has treated six cases by this method, and has secured very satisfactory results.

GALL-STONES COMPLICATED BY FISTULA BETWEEN THE PORTAL VEIN AND THE HEPATIC DUCTS.

MONCRIEFF (*Australasian Medical Gazette,* Sept. 21, 1903) reports a case of biliary calculus in which a large stone was found in the common bile-duct. The wall was incised longitudinally over it, and no hemorrhage took place until the stone escaped from the duct. Its escape was followed immediately by a rush of blood, as if coming from a large vein, but it was impossible to locate the exact origin of the bleeding. The hemorrhage was controlled by gauze packing, but within a few hours the movement of the patient displaced the plug, and he died of hemorrhage into the peritoneal cavity.

At autopsy the common duct was found greatly dilated, being about the size of the thumb, with its mucous membrane roughened, and its wall thickened. There was no evidence of any cystic duct; the common duct opened directly into the gall-bladder and then continued on into the hepatic ducts. These ducts were full of dark, clotted blood. At the transverse fissure, where the portal vein was beginning to divide into its branches, was a small discolored patch under the intima of the vessel about one centimeter in diameter, with a small opening with clear-cut edges like the mouth of a vein in the center of this patch.

On introducing a probe it was seen that the intima of the vein was dissected up, and the discoloration was due to blood lying between the intima and the underlying tissue. From this the probe passed on into one of the large hepatic ducts, just at its commencement from the common duct. This was the source of the hemorrhage; the blood had passed directly from the vein into the ducts, and escaped externally when the stone, which acted as a plug, was removed. On section of the liver all the small bile-ducts were seen to be full of blood-clots. The cause for this abnormal communication was not evident.

TRAUMATIC HEMORRHAGE OF THE SPLEEN—SURGICAL TREATMENT.

In discussing the general subject of hemostasis of splenic wounds, SENN (*Journal of the American Medical Association,* Nov. 21, 1903) suggests that no one exclusive method of treatment can be relied on. The treatment to be employed necessarily depends on the location, size, and character of the wound, and the condition of the wounded organ. The surgical treatment of traumatic hemorrhage of the spleen naturally divides itself into (1) splenectomy; (2) partial splenectomy; (3) splenorrhaphy; (4) aseptic tamponade; (5) cauterization; (6) marginal crushing and suturing.

1. *Splenectomy.* Splenectomy is the operation of necessity in the treatment of traumatic hemorrhage of the spleen if the organ itself is diseased, or in case the wound implicates the main trunk of the splenic artery. If the spleen is enlarged or softened, as is the case after acute infectious diseases, or in consequence of chronic malarial intoxication, wounds cause very obstinate bleeding, which owing to the textural changes which have taken place resists all attempts at hemostasis short of splenectomy. In such an event no time should be lost in the employment of conservative measures, and the diseased, wounded organ should be promptly removed. The same treatment is to be followed if the wound involves the hilus of the spleen and its principal artery.

2. *Partial splenectomy.* If the lower part of the spleen has been extensively crushed, or lacerated, or if a transverse wound has divided two-thirds of the diameter of the organ, removal of the injured or partially detached part of the spleen is indicated. The amputation should be done by the use of crushing forceps, and after excision the crushed tissue should be covered with omentum, which is sutured over it with catgut sutures. Suture of the omentum over the stump is an additional means of hemostasis, and prevents harmful visceral adhesions.

3. *Splenorrhaphy.* Suturing as a hem-

ostatic has had a fairly good record and will be resorted to in appropriate cases. The mattress suture or shoemaker's stitch is best adapted to this purpose. A round needle armed with catgut is used. Bleeding from the punctures is reduced to a minimum by using double catgut sutures so as to tampon the tract made by the needle with the suture material, which soon swells by the absorption of moisture. After the hemorrhage has been arrested in this manner the cut surfaces are sutured together with a few catgut sutures. In bullet wounds a circle of through-and-through mattress sutures will usually succeed. The bullet wound itself, in such cases, should always be drained with aseptic gauze. If suturing is decided on, further loss of blood should be prevented by digital compression on the injured part of the spleen until suturing is completed.

4. *Aseptic tamponade.* In the case of wounds of the spleen the aseptic tampon meets with a decided disadvantage in the absence of an adequate resistance to pressure. Notwithstanding the unfavorable mechanical conditions for effective tamponade, this agent has given satisfactory results in many cases of traumatic affections of the spleen. It will prove of value, however, if the hemorrhage is venous or parenchymatous, but should never be relied on if the bleeding is from arteries of any considerable size—that is, in the treatment of arterial hemorrhage. The typical Mikulicz tampon is the one to be employed in this case. The tampon can be removed with ease, and there is no danger of leaving a part of the tampon in the wound. The tampon also serves the useful purpose of a drain, and should be allowed to remain as long as it is considered necessary to continue drainage.

5. *Cauterization* is not reliable, and may inflict serious damage on important adjacent structures. The eschar which it produces interferes seriously with the ideal healing of the visceral wound. For these and other reasons the actual cautery should be resorted to only in exceptional cases as a hemostatic in the treatment of wounds of the spleen.

6. *Marginal crushing of the wound, and suturing.* The most reliable procedure in arresting traumatic hemorrhage of the spleen in all cases in which the wounded organ can be saved is marginal crushing, followed by suturing the wounded margins with catgut. The hemorrhage is arrested the moment the forceps are applied, and the blood-vessels in the crushed tissues are speedily obliterated by thrombosis, thus guarding against recurrence of the bleeding, and by uniting the crushed wound margins by suturing with catgut the visceral wound is placed in the most favorable condition for speedy healing and regeneration of the tissues lost by the injury and the operative treatment of the wound. Too much stress cannot be placed upon the importance of making compression slowly, as rapid compression is liable to tear the fragile tissue instead of compressing it. With two large hemostatic forceps both wound margins are compressed simultaneously, thus controlling the hemorrhage the instant they are applied.

INTESTINAL OBSTRUCTION DUE TO GALL-STONES.

According to MOYNIHAN (*Medical Chronicle,* August, 1903) the obstruction of the intestine by a gall-stone is an infrequent occurrence. Bernard found that in 365 cases operated upon for intestinal obstruction, 8 were examples of gall-stone ileus. The proportion of cases of obstruction due to gall-stones to that due to other forms is said by Fritz to be 1 to 13; by Leichtenstern 1 to 28. The average age of patients is from fifty-five to sixty years; and women are affected five times more frequently than men, the youngest being twenty-seven.

The gall-stone which causes the obstruction may ulcerate through the gall-bladder into the stomach, the duodenum, the jejunum, or the colon. Cystoduodenal fistulæ are more frequent than all other forms of gall-bladder fistulæ. Cases have been recorded in which the blockage of the bowel was caused by concretions, consisting of a gall-stone nucleus and a laminar deposit of intestinal salts.

Of 32 cases quoted by Leichtenstern, the stone was found in the duodenum or jejunum in 10 cases; in the middle ileum in 5 cases; and in the lower part of the ileum in 17 cases.

In rare instances the stone may cause symptoms of obstruction by becoming impacted in the colon or the sigmoid flex-

ure. The obstruction in the majority of cases is due to the actual blocking of the bowel by a calculus. In exceptional instances a volvulus may be due directly or indirectly to the blocking of the intestine by a gall-stone. More rarely the gall-stone by an irritation of its rough surface may induce a spasm of the bowel and thus cause intestinal blocking. The conditions present in a case of gall-stone ileus differ from those present in the more common forms of intestinal obstruction. There is a blocking in the lumen of the bowel, but there is no interference with the circulation.

The symptoms of intestinal obstruction due to gall-stones vary within the widest possible limits. They are more intense and of the greatest urgency in those cases in which the duodenum or the upper part of the jejunum is blocked; they are subdued and of the type present in chronic obstruction when the sigmoid flexure is involved, or, as in a case related by Ord, where the stone is caught in the rectum, just above the internal sphincter. In the majority of cases the stone is impacted in the ileum, and a definite clinical picture can be drawn.

The history of previous attacks of gall-stone colic was obtained in about one-fifth of the recorded cases, but generally there is no mention made of jaundice as one of the symptoms. The stone generally makes its way through the wall of the gall-bladder directly into the duodenum; there is no interference with the passage of the bile, and as a rule there is no colic.

The patient is generally a woman over fifty years of age, of full habit of body; the onset of the symptoms is sudden; pain and slight collapse are observed first, and very speedily vomiting. The vomiting is incessant, copious, and exhausting. It is a most striking feature of the case, the ejected fluid becoming stercoraceous in twenty-four to thirty-six hours; obstruction is often incomplete, fluids or feces being occasionally passed; rarely there is diarrhea. The abdomen as a rule remains soft and flaccid. Variations from this type are at times encountered.

Spontaneous recovery may be anticipated far more frequently in cases of gall-stone ileus than in other forms of intestinal obstruction. At times the symptoms may be acute, the pain incessant, vomiting most distressing, until a moment when, quite suddenly, ease is experienced and recovery is assured.

Naunyn considers that over 50 per cent of the patients recover under expectant treatment. Fitz collected notes on twenty-three cases of gall-stone obstruction; twelve were treated medically, of whom eight recovered; and eleven surgically, of whom two recovered. The passage of the gall-stone in those cases which recovered occurred on the fourth, fifth, tenth, fourteenth, fifteenth, seventeenth, and twentieth day.

In view of previous statistics many authors advise the expectant rather than the surgical treatment for these cases. It is certain, however, that the best results would be obtained if a series of cases could be treated upon the ordinary principles now governing the treatment of all forms of intestinal obstruction: operation at the earliest possible moment after the diagnosis of acute obstruction has been made. If a sure diagnosis of gall-stone obstruction could be made, a delay of two or three days during which medical treatment was being tried would, in some cases, permit of the passage of the stone. There are, however, very few cases recorded in which the stone was passed before the fourth day.

If medical treatment be advised it will consist chiefly of withholding food by the mouth, in the administration of nutrient enemata once daily, and the injection of morphine and atropine subcutaneously. The constant vomiting may be relieved by occasional lavage.

If operation be advised, an incision just large enough to admit the hand is made between the symphysis and the pubes. When the peritoneum is opened the terminal portion of the ileum is sought. This probably will be found collapsed. The empty gut is passed rapidly through the fingers until the stone is met. The loop containing the stone is withdrawn from the abdomen, clamped above and below, and nipped by the assistant's fingers. The stone is then removed by an incision through the intestinal wall. If the bowel below the stone be very empty and narrow, the stone may be displaced upward two or three inches into a distended portion of the gut, to make the subsequent suture of the bowel easier. The stone

being extracted, the wound is closed by two layers of continuous sutures, the bowel replaced, and the operation completed in the usual manner. The whole operation need not occupy more than twenty or thirty minutes. The shock is therefore slight, the peritoneal handling trivial, and the exposure of the intestine of the briefest.

COMBINED CHOLECYSTENTEROSTOMY WITH ENTEROENTEROSTOMY.

MARAGLIANO (*Centralblatt für Chirurgie,* No. 35, 1903) reports a method which Krause has employed for several years with a view to preventing infection of the gall-passages subsequent to a cholecystenterostomy. He performs a wide enteroenterostomy between the efferent and afferent limbs of the loop of the intestine which has been employed for the cholecystenterostomy. The danger which is present to a certain extent when the opening is made between the gall-bladder and the duodenum is greatly increased in the cases in which the existing adhesions present such operative difficulties that a fistula must be made between the gall-bladder and the jejunum. Cases of severe infection of the gall-passages after cholecystenterostomy have been reported by a number of observers. This danger is overcome by the performance of enteroenterostomy. The intestinal anastomosis short-circuits the fecal current, and reduces to a minimum the amount of fecal contents which come in contact with the gall-bladder opening. Backward pressure of the gall-passages and stasis of the bile are likewise prevented.

ABSCESS OF THE EPIPLOIC APPENDAGE CAUSED BY PERFORATION OF THE COLON.

It is clear after a consideration of the normal anatomy of the colon that there are portions of its circumference where a sharp foreign body could penetrate and escape into the peritoneal cavity, and the thinner and more emaciated the person, the greater is the arc of the gut which would allow the penetration of the foreign body. In a fat person, on the other hand, although there is a short arc where it could be perforated, there is a far greater extent of its circumference protected by fat, into which the escaping body would more probably find its way; and in a certain proportion of cases the penetrating body would lodge in an adjacent epiploic appendage. The fatter the patient the less likely is the foreign body to penetrate into the peritoneal cavity, and the greater is its chance of entering an epiploic appendage.

BLAND-SUTTON (*Lancet,* Oct. 24, 1903) reports two cases which prove that foreign bodies from the colon may lodge in the epiploic appendages, and shows some of the consequences which arise therefrom.

The first patient was a man aged forty years, who had acute pain in the left iliac region, accompanied by some local swelling, tenderness, and fever. The signs were such that if they had occurred in the right instead of the left iliac region, the diagnosis of acute appendicitis would have been incontestable. Upon opening the abdomen there was found an ovoid body as large as a bantam's egg, and quite as smooth, and sessile to the ascending colon. This lump was split open longitudinally, and in its center was found a distinctly circumscribed cavity, communicating with the lumen of the colon by a narrow passage. Inspissated fecal matter filled the cavity, and in its midst was detected a sharp foreign body. The anterior and posterior halves of the epiploic appendage were secured with silk sutures to the peritoneal edges of the wound, and after inserting a drainage-tube into the feces-containing cavity, the incision was brought together with interrupted sutures. About the fourth day fecal matter escaped freely from the wound. This continued until the tenth day, and then the sinus slowly granulated.

The second patient was a woman sixty years of age who suffered from symptoms of chronic intestinal obstruction, associated with a defined, tender, painful lump, the size of a bantam's egg, in the left iliac fossa. The age of the patient, the situation and mobility of the lump, in conjunction with liquid feces from the anus, led to the diagnosis of cancer of the descending colon. By incision through the left semilunaris an oval body was exposed on the sigmoid flexure of the colon. Its hardness suggested malignancy. The adjacent walls of the gut were very thick

and infiltrated, so that a wide colectomy was decided upon, and the cut ends of the colon were secured separately in the abdominal incision.

The resected portion of the colon was bisected, and in the middle of the suspected cancerous growth a lump was found, a smooth, round, ball-like body lodged in a smooth-walled cavity communicating with the mucous surface of the bowel by a narrow tubular channel. The globular body in the cavity had a fragment of straw for a nucleus.

The very large size of an epiploic appendage which contains a foreign body is in a large measure due to the deposit of lymph on its periphery, its subsequent organization providing for it a stout and firm capsule. From a study of an abscess in the epiploic appendage the author believes there can be no reasonable doubt that in some instances, at least, the cause of tumors of the abdomen which appear inoperable during exploratory laparotomy, and which later disappear spontaneously, is a minute foreign body, which has perforated the cæcum, the colon, the sigmoid flexure, or the rectum.

OSTEOPLASTY OF THE SKULL.

KAYSER (*Deutsche Zeitschrift für Chirurgie,* October, 1903) reports a case of compound comminuted fracture of the skull in which he successfully employed portions of the inner table for the purpose of closing partially the defect in the skull, and preventing prolapse of brain tissue through the lacerated meninges.

The author presents the following conclusions in regard to this form of osteoplasty:

1. An attempt should be made in most cases of traumatic defects of the skull to close the defect by implantation of the splintered fragments.

2. The fragments from the inner table of the skull are especially adapted for this purpose, because of their large size and smooth inner surface.

3. The fragments from the inner table should be secured in position by turning them in such a way that the ends of the fragment become wedged in the diploe. This fixation prevents pressure on the brain, which might occur if the fragments were loose, and at the same time favors healing.

4. The method does not possess any disadvantages and does not complicate the performance of a secondary plastic operation.

5. The operation should be performed shortly after receipt of the injury.

6. In cases of extensive destruction of the meninges, and injury to the brain tissue, a distinct advantage of this method over other forms of plastic operations is the fact that the osseous defect may be closed immediately.

BIMANUAL MASSAGE OF THE HEART FOR COLLAPSE FOLLOWING CHLOROFORM NARCOSIS.

COHEN (*Journal of the American Medical Association,* Nov. 7, 1903) reports the case of a woman aged thirty-two years who was operated upon under chloroform anesthesia for adherent ovarian cyst. Fifteen minutes after the commencement of the operation the patient, without any previous respiratory, circulatory, or pupilary symptoms, suddenly became cyanotic and pulseless; cessation of respiration in this case following and not preceding that of the heart. Artificial respiration was then resorted to and continued, and the usual hypodermics administered. After two minutes had elapsed and no reaction had been established, the operator introduced his left hand into the abdominal cavity, pushed it along the anterior abdominal wall until the diaphragm was reached, then turning the hand, palm upward, easily grasped the heart through the relaxed and intervening diaphragm. There was an entire absence of heart action. After placing the right hand over the precordial region externally, bimanual rhythmical compression of the heart was performed at the rate of about sixty times a minute. After thirty seconds a slight beat was felt by the left hand. The heart then began slowly to beat, gradually increasing both in strength and rapidity of beat, until after the end of one minute the beats registered about eighty to the minute, and respiration was partially reëstablished. About two minutes later respiration was normal, pulse 80.

The shock being apparently recovered from, the anesthetic was changed to ether, and the operation finished in about thirty minutes. At the completion of the opera-

tion the patient was in good condition, pulse being 86 and respiration about normal. Consciousness returned in about the usual length of time.

HALLUX VALGUS.

SHELDON (*Medical Record,* Oct. 31, 1903) believes (*a*) that an imperfectly fitting shoe is never the cause of hallux valgus; (*b*) that hallux valgus in the majority of cases occurs in feet so formed as to predispose to the condition; (*c*) that the extensor proprius pollicis muscle plays a most important rôle in causing and aggravating the condition; and (*d*) that osseous changes on the inner side of the distal end of the metatarsal bone are commonly found in severe cases.

All the cases of hallux valgus which the author has examined have occurred in patients whose feet were of one type: instep high, the arch of the foot well formed, the extensor tendons of the great toe prominent at the metatarsophalangeal joint; the first phalanges of the joint extended and the distal phalanges flexed.

The author has never seen a case of hallux valgus in a patient afflicted with flatfoot. He has operated upon thirty cases, in all of which there was a subluxation of the first metatarsophalangeal joint and some change in the inner side of the distal end of the metatarsal bone. In some cases there was marked hypertrophy. He has never seen any changes present in the phalanx nor in the outer side of the distal end of the first metatarsal bone.

Mechanical appliances appear to be practically useless. Resection of the metatarsophalangeal joint is an unnecessarily severe operation. Six beginning cases were treated by lengthening the tendons of the extensor proprius pollicis and extensor brevis digitorum for one inch. The toe remained in proper position and the power of extension was present. The results were satisfactory, but can be recommended only in mild cases.

Twelve cases were operated upon by a method recommended by Dawbarn, the head of the metatarsal bone being resected with a Gigli saw without injuring the tendons or the sesamoid bones. The space occupied by the resected bone fills with blood and heals by the blood-clot process. The results were quite satisfactory in ten of the twelve cases. In one infection occurred; the joint was stiff, but was not painful or tender. In the other patient the wound healing was perfect, but the joint remained tender and was painful at times. In all of these cases the toe was somewhat shortened.

In all well marked cases of hallux valgus the following procedure is recommended: If a tender bursa be present, it and as much of the overlying skin as is compatible with the complete closure of the wound are excised. The inner portion of the distal end of the first metatarsal bone is exposed by means of a chisel or periosteotome. The inner one-half or two-thirds of the head of the bone is removed with bone forceps, and the extensor tendons of the great toe are divided. The fascia and ligaments are drawn together with catgut and the skin approximated with silkworm-gut. The toe is held in proper position with a plantar splint and adhesive plaster. If an infected bursa is present it requires excision and complete healing of the wound before performing the radical operation.

In all twelve cases operated upon by this method the result was perfect within two or four weeks, the toe being in proper position and not shortened, the joint freely movable, and not painful or tender. One toe became infected, but this produced no bad results.

CIRRHOSIS OF THE LIVER—TALMA'S OPERATION.

HARRIS (*Journal of the American Medical Association,* Oct. 31, 1903) reports four cases, which in addition to two previously reported make a total of six cases of cirrhosis of the liver, in which he has performed Talma's operation.

Five of the patients died within a month after operation, and one was alive but without improvement five months after the operation. The five cases that died were undoubted cases of alcoholic cirrhosis. The surviving case was in all probability due to syphilis. All of the cases were far advanced when operation was undertaken, and in two of the cases, in addition to omental fixation, cholecystostomy was performed in order to drain

the gall-tracts to relieve the so-called cholemic symptoms. Death followed in one of the cases in a few days. In the other some improvement occurred for a few weeks, and then the patient suddenly died.

One patient was tapped three times in three weeks, after which the abdomen did not refill for three years, during which time the patient felt fairly well. The improvement in this case was probably due to extensive adhesions which were found at the operation between the omentum, liver, and abdominal parietes, and which had formed evidently at the time of the first tappings, and the collateral circulation which resulted was sufficient to prevent the reaccumulation of the fluid for some time.

The author believes that congestion of the portal radicals is not the sole cause of ascites, and that the changes in the peritoneum of a chronic inflammatory nature are instrumental in its production, particularly during the terminal stages. The fact that the fluid taken from the abdomen was hypertonic in two cases, as shown by its crenating effect on freshly drawn blood from the same patient, is another evidence of the inflammatory character of the fluid. The writer is of the opinion that the benefit to be derived from Talma's operation in alcoholic cirrhosis, even under favorable conditions, is but temporary. In order to obtain the full benefits of the operation it should be performed at the first appearance of the ascites.

In the cases showing jaundice, or symptoms of cholemia, cholecystostomy should be performed at the same time.

WOUND SCARLET FEVER.

Within six months GERASSIMOWITSCH (quoted in the *Centralblatt für Chirurgie,* Oct. 17, 1903) observed eleven cases of wound scarlet fever. He thus summarizes his conclusions regarding the character of the affection:

Operative cases have a special predisposition to scarlet fever. Infection occurs at the time of injury or operation, and apparently gains its entrance through the wound. The clinical picture is characteristic. The incubation period is generally shortened (usually four days); the prodromal fever is present, and occurs as a sudden elevation of the temperature shortly before the appearance of the eruption, as commonly seen in scarlet fever; or frequently there is a gradual elevation of temperature during three or four days. The eruption begins around the wound and extends from this point. The wound pursues a complicated course, and generally there is long-continued suppuration. There is absence of throat symptoms. The disease is usually mild.

Of the eleven cases one died from empyema. Scarlet fever is a wound disease in children comparable to erysipelas or tetanus. Many cases of scarlatinoid exanthems following injection of serum in diphtheria are really cases of pure wound scarlet fever.

ANKYLOSIS OF THE LOWER JAW—OPERATIVE TREATMENT.

KUSNETSKI (*Centralblatt für Chirurgie,* Oct. 17, 1903) reports two cases of ankylosis of the lower jaw in which he removed a section of bone one centimeter in length from the middle of the ascending ramus of the lower jaw, and implanted a muscular flap from the masseter muscle between the ends of the resected bone. The first patient was a seven-year-old child in whom ankylosis developed four years previously, after an attack of scarlet fever and otitis media, and the second patient was a woman thirty years old in whom the ankylosis developed after an attack of typhoid fever, complicated by inflammation of the joint twenty years previously.

After operation the child could open his mouth to an extent of 1.75 centimeters, and the woman to 2.5 centimeters. These two cases, taken in conjunction with ten reported by Schmidt, prove the usefulness of this method.

URETHRAL CARUNCLE—PALLIATIVE TREATMENT.

DENDLE (*West London Medical Journal,* October, 1903) reports a case of large caruncle which extended for quite half an inch into the urethra. The patient was treated twice weekly by an application of tampons wet with 1:1000 solution of adrenalin chloride, containing five per

cent cocaine. Within a short time the pain ceased and the growth was much smaller. The occasional use of the application so completely prevents discomfort that the patient declines to consider the question of operation. According to the author's experience it seems almost impossible to eradicate large caruncles extending into the urethra without risk of incontinence. On the other hand, if removal is not complete recurrence is sure to set in at an early date. The author has had nine cases of urethral caruncle under observation, and considers the result of this palliative treatment most favorable compared with surgical treatment employed in eight of the cases.

VESICOINTESTINAL FISTULA.

HUBBARD (*Boston Medical and Surgical Journal,* Oct. 8, 1903) reports a case of vesicointestinal fistula without evidences of carcinoma or tuberculosis of the inflammatory type, with a stone of apparently secondary origin. Operation was followed by a fatal termination.

Vesicointestinal fistulæ occur more often in men than in women, 75 per cent of the cases being found in men, and 25 per cent in women. This is due in part to the difference in the anatomical relation of the bladder in the two sexes, and in part to the greater liability of men to trauma—many of the reported cases having been due to gunshot wounds and sword-thrusts. The immediate cause of the fistula may occur in either the bladder or the intestine, or outside of both. The causes of the non-traumatic cases are cancer, tuberculosis, and non-traumatic inflammation; the last class being due to a great variety of diseases—cysts, periostitis, vesical calculus, toxic enteritis, typhoid, dysentery, appendicitis, intestinal obstruction, stricture of the intestine, syphilis, and actinomycosis. The simple inflammatory lesions cause the greater number of fistulæ—30.52 per cent of ninety-five cases analyzed by Chavannaz. Tubercular inflammation with its primary focus in the intestine or the prostate, or less commonly in the bladder or seminal vesicles, furnishes 7.36 per cent; and cancer, originating usually in the rectum, 20 per cent. Paschal found the cause of the cases analyzed primary in the bladder in 18 per cent, and in the intestine in 35 per cent. The cases are fairly evenly distributed over early adult life and old age.

In but 5 cases out of 95 were there several openings in the bladder. In 100 cases tabulated by Paschal, the orifice in the bladder was situated on the anterior face in one case; on the side, 9 times; on the summit, 13; in the base, 17; and on the posterior surface 23 times, 19 of which were near the ureters. Of 195 cases the connection was with the rectum in 113; with the colon, and especially the sigmoid, in 42; and with the ileum 26 times.

The opening of the fistula may form a valve which prevents the passage of material in one direction. The bladder itself is usually diminished in size, and eventually with the urethra becomes chronically inflamed, though it may withstand for a surprisingly long time the presence of the fecal matter. Infection ascending through the ureters and to the kidneys is rare. Secondary stones may form in the bladder about a nucleus of fecal matter, and be composed largely of fecal material, or of phosphates. The intestine below the fistula becomes inflamed and irritable from the presence of the urine, or the rectum may dilate and form a pouch in which the urine collects, only to be passed at intervals.

It would seem that the diagnosis of the connection between the bladder and the intestine could be made from the presence of any one of the three characteristic symptoms—gas or fecal matter in the urine, and urine in the stools. Other conditions, however, may give rise to some of the above symptoms. Gas may appear in the urine after catheterization, or litholapaxy; it is developed sometimes in diabetes mellitus when a yeast fungus reaches the urine in the bladder and starts up fermentation. It may occur also when purulent cavities with gaseous contents develop near the bladder and break into it. Pneumaturia occurs without any reason in certain neuropathies (Guirard).

The presence of fecal matter in the urine is proof of the existence of a fistula within the intestinal tract. It may connect, however, with the urinary apparatus below the bladder. In a urethrorectal fistula there will be anal urination only at

the time when urine is passed through the urethra, but physical examination will settle the question. Urine in the rectum other than that due to a vesicointestinal or a urethrorectal fistula may occur in a ureterointestinal fistula. The differential diagnosis may be made by absence of fecal matter in the urine, and by a physical examination. Cases of neoplasms and tuberculosis which give rise to this condition must be so far advanced as to make other diagnosis easy.

As the simple inflammatory fistulæ are the most favorable for treatment, an early diagnosis is important. The examination of the bladder and rectum is made by cystoscope and proctoscope. The injection of a colored fluid into the rectum and its recovery through the bladder is sure proof of the presence of a fistula. A negative result from the injection one way does not rule out the fistula.

Palliative treatment is devoted to keeping the bladder and the rectum clean by frequent irrigations, by permanent drainage, or in some cases by the position of the patient. In order to prevent the passage of feces into the bladder, an artificial anus may be formed above the intestinal end of the fistula. Vesicointestinal fistulæ, from the standpoint of their radical cure, are divided clinically into those accessible from the rectum, or vesicorectal; and those inaccessible, or vesicointestinal, even though the fistula connects anatomically with the upper part of the rectum.

Various procedures have been suggested for the radical cure, the most important of which are the following:

Rectal route. The anus is stretched, and the edges of the fistula from the inside of the rectum are freshened and sutured in layers. Division of the sphincter insures free discharge of feces and lessens the likelihood of the stitches tearing.

Perineal route. Transverse incision in the perineum. The rectum is separated from the bladder and urethra in front; the peritoneum is pushed up out of the way if the fistula is high, and the fistula directly sutured. Drainage is advisable. At the end of the operation the rectum should be turned a little so that the repaired opening in the bladder may come against the healthy wall.

Sacral route. Incision is made from the anus along the side of the coccyx and cæcum, and the bone flap turned back. The fistula may reach up, pulling the rectum to one side.

Vesical route. The fistula may be attacked through a suprapubic incision into the bladder. The mechanical difficulties by this route are great.

Abdominal route. Separation of the intestine from the bladder and direct repair of the opening in each. Drainage.

Paschal gives the following result: Rectal or perineal route, with or without sphincterotomy, 14 cases; healing of the fistula in 8, failure in 6. Laparotomy in 17; 9 failures, 7 recoveries, and 1 improvement. The causes of death in the fatal cases were peritonitis and shock.

TERMINAL SYPHILIS AND TABES.

The interesting statement is made by DOUGHERTY (*Medical Record,* Nov. 14, 1903) that in its earlier stages tabes is five times out of ten wrongly diagnosticated, and argument is presented in favor of the theory that the origin of the disease is syphilitic.

A study of syphilitic phenomena in general warrants the assumption that syphilis is a disease of extremely slow evolution. The syphilitic virus, or whatever the infective agent may be, undergoes in the body as time advances transformation, which endows it with the power of initiating in the organism structural changes, corresponding to a more or less definite period in the evolutionary cycle of the virus; the ultimate product of its activity being represented in the so-called parasyphilitic affection, or, as Dougherty prefers to designate them, terminal syphilitic affections. Of these the principal examples are met with in the central nervous system, namely, locomotor ataxia and general paresis.

Alcohol, sexual excesses, and the strenuous life occupy an important rôle in the etiology of tabes only in so far as they cause a depreciation of vitality in the neuron, which permits the poisons engendered by the luetic infection to attack it with increased virulence.

There are many reported cases of tabes seemingly due to trauma, but the number without a coexisting syphilitic history is exceedingly small, so that one is forced to the conclusion that the rôle (if any) as-

sumed by trauma in the etiology of locomotor ataxia is similar to that of alcohol and other depressing agencies.

As the leison of tabes is primarily one of the posterior columns of the cord or of the peripheral sensory neuron, it follows that the symptoms presenting themselves should be those caused by irritation in these tracts. This is what occurs, and in the vast majority of cases pain or paresthesia, involving usually the legs, is complained of first. The paresthesia, which the patients most often describe as numbness, but which may be any perversion of sensation, is confined to a limited portion of one foot or leg, or may involve the body from the waist down, or more rarely is confined to portions higher up, as the hand or arm; when occurring around the waist it is often referred to as the girdle symptom. The pain may be shooting, lightning-like, or dull in character; it is usually intermittent, and seems often to be aggravated by damp weather. It is at this period that patients consult the family physician, and it is at this period that the diagnosis "rheumatism" is often made.

Occasionally one of the earliest and most distressing symptoms is paroxysms of coughing or retching and vomiting, with gastric pains, and probably diarrhea, constituting respectively the laryngeal and gastric crises. In a limited number of cases diplopia will be the first symptom complained of. Disturbance of the urogenital system is usually an early sign, and may manifest itself in incontinence or retention of urine, or in some interference of the sexual function—as diminished desire, capacity, or complete impotency. The bowels are apt to be constipated. Any of these symptoms alone, or in combination, may continue for months or years without change; then there will be added to them some disturbance of locomotion, such as difficulty in going up or down stairs, or of walking in the dark, or a tendency to fall, especially on turning corners; or, as in the case of commuters when running to catch a train, a giving way at the knees, this being due to muscular hypotonia. Muscular hypotonia is therefore often a valuable sign in early tabes.

As the disease advances the patient experiences difficulty in walking under any condition, and soon develops the gait and posture so characteristic of the disease; the eyes are kept on the ground, the body bent slightly forward, the legs lifted forcibly, and the feet brought sharply to the ground, heels first. After several years in this condition, unless properly treated, the patient loses entirely the power of walking, and becomes bedridden, where he may remain for many years, finally dying of some intercurrent disease.

When, therefore, a patient presents himself complaining of any of the symptoms above enumerated, it is incumbent upon the consultant to institute so thorough an examination of his patient that the signs of tabes, if present, will be revealed. With that end in view the patient's entire clothing should be removed.

Note if there is any ataxia of station, so-called Romberg sign, consisting of swaying of the body when the eyes are closed and the feet in apposition. Observe if there is any ataxia of the upper or lower extremities; examine knee-jerks and Achilles jerks—the latter may be the first to disappear, and the former disappear early except in high tabes, or are only brought out slightly on reënforcement. The pupils may be unequal in size, but are more apt to be equal and small, and in the early stages they may respond sluggishly to light, but later they lose this power, but usually continue to react to accommodation—the so-called Argyll-Robertson pupil.

Objective sensory disturbances are nearly always early signs in tabes and may appear in the form of a small area of complete or partial analgesia, often found on the outer side of the leg. There may be areas of anesthesia, or the sensations may simply be delayed in transmission. Areas of hyperesthesia are common, especially in the very early stages.

When the tabetic consults a physician because of paresthesia, pain, loss of sexual desire, or other symptoms of similar significance, he is likely to have physical signs that are characteristic of the disease, and of these the most important are loss of the knee and Achilles jerks and the presence of the Argyll-Robertson pupil. There are cases in which these important signs are reversed.

There should be suspicions of tabes at once if a patient presents himself for examination giving a history of syphilis, the disease having been contracted six to

twelve or more years before; and complaining of paresthesia or pains, especially in the legs, or of diplopia or any disturbance of the urogenital or gastrointestinal systems.

Difficulty in locomotion, as a rule, does not belong to an early period of the disease.

Tabes in its various stages is to be distinguished from chronic myelitis, multiple neuritis, spinal tumor, spinal syphilis, general paresis, Friedrich's ataxia, hysteria, and neurasthenia.

As regards cure it is practically hopeless, although under proper treatment and régime the patient may live anywhere from ten to thirty years, and his usefulness as a unit of society need not be particularly curtailed. In the so-called cervical tabes, which fortunately is quite rare, death is likely to occur early, owing to implication of important centers in the medulla.

When tabes has developed, the treatment consists in placing the patient under conditions that will guarantee him immunity from physical and mental strain and excesses of all kinds. He should so far as possible guard against inducing leg weariness, as this tends to aggravate the disease. As general tonic agents, fresh air and hydrotherapy are of service.

For the ataxia which is so distressing a symptom when the disease is well developed, the Fränkel movements are of great service, and if properly carried out the benefit derived is often very gratifying. Electricity is used very extensively in the treatment of this disease, but it practically does no good other than to maintain the nutrition of the muscles, and for this purpose it is inferior to massage. The static spark and the high-frequency currents often seem to relieve the paresthesia and pain. The use of electricity also gives the patient confidence that something is being done for him, and in this way tends to mitigate distressing mental symptoms. The galvanic current is useful in some cases, and should be applied with the positive pole over the chest and the negative along the spine every day, or every other day, and long enough to induce a hyperemia. A current of from ten to fifteen milliamperes is sufficient, but as the patients are often wholly or partially anesthetic, they will endure a much stronger current without complaining. This, however, should not be given them.

Drugs are of little service, if any, aside from their action as general tonics, and for this purpose strychnine, potassium iodide in small doses, and the organic preparations of iron are good. Nitrate of silver is seldom used now, because the benefit derived, if any, is offset by the discoloration it produces in the skin.

As has been said before, antisyphilitic medication *per se* is valueless in tabes; in fact, it is contraindicated, as it is likely to disturb digestion and lower the resistive power of the individual. If the symptoms of tabes, however, should develop within five years after luetic infection, or if there is any evidence of exudative syphilis in the individual, the patient should be placed upon antisyphilitic medication, in view of a probable spinal lues, or in other words, tertiary syphilis, that resembles tabes or terminal syphilis, to which the term pseudotabes is applied.

FRACTURE OF THE PATELLA.

MULLER (*Archiv für klinische Chirurgie,* Band 70, Heft 3) presents statistics on 15 cases of fracture of the patella. Indirect violence due to muscular action was the sole cause of fracture in 7 cases, and played a more or less prominent part in the remaining ones. The fracture was transverse in 13 cases, crucial in 1, and irregular in 1. Eleven cases were treated by bandaging or splinting, and 4 by wiring the fragments.

For statistical purposes the author recognizes a period of primary treatment, which was expended in securing bony union, and a period of secondary treatment, which was employed in restoring the function of the part. In the 11 non-operative cases the average duration of the primary treatment was 98.7 days, and the secondary treatment 71 days. Of the 4 operative cases the average duration of the primary treatment was 93.1 days, and the secondary treatment 125 days.

In six of the non-operative cases, and in one of the operative cases, there was more or less diastasis of the fragments at the end of treatment. In none of the 13 cases was there complete restoration of motion in the knee-joint. The normal range of motion in the knee-joint is represented by an angle of 150 degrees. In

the non-operative cases the average range of motion following a primary treatment was 56.4 degrees; and following a secondary treatment was 120 degrees. In the operative cases the average range of motion after the primary treatment was 51.5 degrees, and after secondary treatment 90 degrees.

BANTI'S DISEASE—SPLENECTOMY.

The number of cases of splenic anemia, or Banti's disease, which have been treated by splenectomy prove, says LEVISON (*Annals of Surgery*, November, 1903), how much can be accomplished in these affections by surgical measures, for if not so treated the disease usually terminates fatally. The surgical treatment has improved to such an extent within the last ten years that the mortality is 18.9 per cent against 42.2 per cent, the latter being the mortality before 1890.

As the result of improper selection of cases, however, the mortality in splenectomy has been materially increased, hence a proper diagnosis is of the utmost importance.

The attention of the patient is often attracted to a tumor in the left side, which may be the first indication. Nausea, vomiting, epistaxis, profuse and protracted diarrhea frequently occur; when the tumor increases in size the patient complains of dragging sensation in the side. Very few, however, experience any pain. Frequently there is bronzing of the skin (melanoderma), such being present in about 60 per cent of cases reported by Osler. This pigment disappears, according to Harris, subsequent to a splenectomy for splenic anemia. There is no lymphatic involvement, which differentiates it from Hodgkin's disease. The liver may or may not be enlarged. Edema and ascites may develop. Hemorrhages are very frequent, death at times resulting from profuse bleedings or exhaustion.

The blood findings are fairly constant—reds about 3,500,000; a low color index showing a diminution of hemoglobin disproportionate to the number of red blood cells (secondary anemia of the chlorotic type). In the greater number of cases leucopenia is present, generally below 5000. There are no nucleated red cells, nor does the differential count reveal anything of significance. No myelocytes, excluding leukemia. In several of Osler's cases ascites was present.

The case reported by Levison presents several points of interest. A summary of the striking features would include: (1) a long period of personal observation; (2) infectious appendicitis preceding the invasion of the disease; (3) intervals of perfect health interrupted by profuse bleedings; (4) typical blood findings; (5) exacerbation of temperature and the accompanying leucocytosis, both indicating some form of infection; (6) slate-colored stools and diarrhea; (7) severe pains between the shoulder-blades, requiring enormous quantities of morphine; (8) disappearance of distended abdominal and chest veins, followed by the spontaneous disappearance of the ascites; (9) splenectomy followed by a rapid increase in the percentage of hemoglobin; (10) appearance of normoblasts and the megaloblasts in the blood subsequent to the splenectomy; (11) rapid regeneration of a very abnormal blood; (12) disappearance of the melanoderma following the operation; and (13) thrombosis of the right innominate subclavian and internal jugular vein, and the recovery of the patient from the same.

The gravity of the operation increases *pari passu* with the size of the spleen.

In the one case spoken of here, under chloroform narcosis, an incision was made in the left semilunar line extending from the left costal angle to the level of the navel. The spleen was readily exposed and palpated in its entirety. Diaphragmatic adhesions were absent, but the splenodiaphragmatic ligament was readily felt connecting the organ to the diaphragm. Great difficulty was experienced in delivering the spleen on account of the shortness of the pedicle, which consisted of the peritoneal fold, including the splenic vessels, constituting the gastrosplenic ligament. The first attempt at ligation was followed by an alarming hemorrhage due to the tearing of one of the large splenic sinuses; the hemorrhage could only be controlled after the spleen had been delivered, which became possible when the ligament extending to the diaphragm was tied off. This permitted the delivery of the upper end of the organ, after which the entire spleen was lifted out and turned from left to right, the pedicle being exposed from

below. It was necessary, however, to enlarge the incision, by making a supplementary incision extending from the middle of the vertical incision horizontally to the left for a distance of about three inches. The pedicle was ligated in sections, tied double, and cut between; extra ligatures were applied to the individual vessels to avert secondary hemorrhage; chromic gut was used. The vessels of the greater omentum were enormously enlarged, but were not interfered with on account of the necessity of maintaining a collateral circulation, possibly obviating a recurrence of ascites. There was considerable hemorrhage from oozing low down from the diaphragm, near the spinal column. This was controlled by gauze packing, which was allowed to remain thirty-six hours. No shock from the operation, notwithstanding the fact that there was considerable loss of blood. Color good when removed from the table. Duration of operation, one and one-half hours, most of the time being lost in controlling oozing.

Reviews.

BIOGRAPHIC CLINICS. Volume II. By George M. Gould, M.D.
Philadelphia: P. Blakiston's Son & Co., 1904.

This small octavo volume, the second one published by Dr. Gould upon this subject, deals with the origin of the ill health of George Eliot, George Henry Lewes, Wagner, Parkman, Jane Welch Carlyle, Spencer, Whittier, Margaret Fuller Ossoli, and Nietzsche. The contents of this volume we believe have already been published in a number of medical journals, so that this is practically a reprint of previously published papers. In looking over its pages we are, on the one hand, filled with admiration for the truly extraordinary literary activity which characterizes Dr. Gould, and on the other hand we cannot help feeling that it is to a large extent misspent energy. It has now come to be universally recognized that eye-strain causes headache, and that it may result in perverted functions in other organs in the body. It may be necessary at times in order to impress this fact sufficiently upon the profession, and the public, to again call attention to it, and to cite instances in which violent headache and other symptoms have arisen from eye-strain, and then been cured by the proper adjustment of glasses. But surely an endeavor to prove that most of the great literary lights which we are wont to worship owed all their abnormalities in health to strained eyes is needless exaggeration. No one can deny that in many instances their health was anything but good. But there is certainly not a very large amount of evidence to prove that its impairment was ocular. Lack of proper exercise and a hundred other influences must be taken into consideration in cases of this kind, and these have been ignored. How do we know that their irritability of temper or attacks of pain were not the result of other functional or organic lesions?

The volume closes by an appendix which is entitled "68 Reasons why Glasses did not Give Relief," reminding us a little bit of the advertisement on the fences of "57 varieties of pickles," or "58 reasons why so-and-so's pianos are the best." We wish that Dr. Gould's energies and extraordinary working powers could be diverted in the direction of original research, and that he would wander in the green fields of original work rather than toil, to use the expression of a well known physician, "in the barren moor" of the supposititious ills of great men.

INFANT FEEDING IN ITS RELATION TO HEALTH AND DISEASE. By Louis Fischer, M.D. Third Edition. Price, $1.50.
Philadelphia: The F. A. Davis Company, 1903.

Dr. Fischer's book contains 300 pages devoted chiefly to the subject it bears upon its title page. In addition to chapters on the capacity of the stomach, the digestive ferments, and the relative advantages of breast and bottle feeding, there are additional chapters dealing with colic, constipation, rickets, scurvy, dentition, marasmus, and summer complaint, and finally a list of references which he has consulted in the preparation of this volume. In a considerable number of instances the text does not consist so much in an expression of the views of the writer as in the quotation of the opinions of other clinicians. In other words, a good part of the book is quoted. This

results in the presentation of what might be called an epitome of our knowledge of infant feeding. To those who are desirous of obtaining an exhaustive and complete work on this subject, the book can be most highly recommended, for it is based upon clinical experience and a complete knowledge of the literature of the subject.

SOCIAL DISEASES AND MARRIAGE: OR SOCIAL PROPHYLAXIS. By Prince A. Morrow, A.M., M.D.
Philadelphia: Lea Brothers & Co., 1904.

We are glad that this valuable contribution to this somewhat delicate subject has been made by one so competent to deal with it as Dr. Morrow. There are few questions which come before medical men for decision which require greater tact than those which deal with the questions connected with what has been called the "social evil." Not infrequently the opinion of the physician in such matters must be controlled not only by his knowledge of medicine, but also by his knowledge of the individuals involved and of the law which has been promulgated for the control of such conditions. We have every reason to believe that the present book will have a large sale amongst both the legal and medical professions. Part I deals with the relation of marriage and venereal disease; medical secrets; the significance of gonorrhea and syphilis as social dangers; the risks to the offspring; and the effects of the various types of gonorrhea. The chapters in Part II deal with the relations of syphilis and marriage. Part III deals with Social Prophylaxis, and the educational, administrative, and sanitary measures for the control of venereal disease.

SUBJECTIVE SENSATIONS OF SIGHT AND SOUND. Abiotrophy and Other Lectures. By Sir William R. Gowers, M.D., F.R.C.P., F.R.S.
Philadelphia: P. Blakiston's Son & Co., 1904.

For many years it has been the custom of Sir William Gowers to gather together the various articles contributed by him to medical journals and publish them in the form of small manuals. Such articles form the contents of this little volume. Originally prepared in the form of lectures, he has carefully revised them, and brought them up to date. The subjects considered in this small octavo volume of 250 pages are Subjective Visual Sensations, Subjective Sensations of Sound, Abiotrophy, or Diseases from Defect of Life, Myopathy, Metallic Poisoning, Syphilitic Disease of the Nervous System, Syringal Hemorrhage into the Spinal Cord, Myasthenia, Ophthalmoplegia, and a final chapter upon the "Use of Drugs," which although written originally some years ago by the author represents his therapeutic views to-day. We are glad to note that so successful a man as Sir William Gowers asserts that his views as to the value of drugs and the proper method of their employment depend very largely upon the thorough training which he obtained in the early years of his professional life, when he laid the foundations of successful specialism in a course of general practice. Surely he is correct in the belief that in these modern days we often make specialists out of men who are not even good general practitioners.

AFTER-TREATMENT OF OPERATION. Manual for Practitioners and House Surgeons. By P. Lockhart Mummery, F.R.C.S. Eng.
New York: William Wood & Co., 1903.

From the fact that this extremely important subject is, as a rule, treated in a fragmentary manner in the larger textbooks on surgery, Mummery concludes, and it is to be hoped justly, that there is a place for a small book devoted entirely to the after-treatment of operations. This is quite true, provided the subject-matter be dealt with in an essentially practical manner.

The first chapter is introductory in nature, and deals with such subjects as posture, the prone position being the one of preference. All elderly persons, he states, should be nursed in the semirecumbent posture. Undue pressure on the sacrum is prevented by the use of what is called the "Sister Dorris" support. After laparotomy it is taught that the patient should be allowed to turn on his side. For sleeplessness after operation morphine is the drug of choice, and this is also given for pain, though phenacetine is strongly commended. The thirst is slacked by giving water freely, the caution being observed that not more than half a pint be administered at one time. Even if it causes sickness, it is held that the water is beneficial in washing out the stomach. As to postoperative insanity,

the main safeguard lies in a careful preparation of the patient beforehand.

In the chapter devoted to the treatment of wounds there is an interesting study of temperature charts. The directions for subsequent dressings are extremely sensible. The treatment of hemorrhage is such as is usually found in text-books. Allingham's method of plugging the rectum is fully described. There is an interesting chapter on shock, and the treatment is given in detail, strychnine being advocated. Suprarenal extract is merely mentioned, and the dose and method of its administration are not considered of sufficient importance to be embodied in the text. It is satisfactory to note that Crile's admirable experiments on transfusion have been considered. The treatment of postanesthetic vomiting includes the immediate washing out of the stomach where vomiting is feared, and the giving of half a pint of water to drink. Lung complications are dismissed with a very few words. To thrombosis following operations is devoted a chapter, as is also one upon postoperative rashes, and drug poisons. Then follow chapters on operations on the mouth, nose, and pharynx, the head and neck, the thorax and the abdomen, genito-urinary tract, the rectum, and the joints.

There is a brief appendix containing useful suggestions in regard to rectal feeding, subcutaneous feeding, diet, massage, exercises, and artificial appliances.

The book, though useful and containing many valuable suggestions, is by no means complete.

COMPEND OF GYNECOLOGY. By William H. Wells, M.D. Third Edition, Revised and Enlarged; 145 illustrations.
Philadelphia: P. Blakiston's Son & Co., 1903.

This compend departs from the familiar type from the fact that it is not in the form of questions and answers, but rather represents a summary of the essential teachings on the subject. The great popularity these compends have enjoyed at the hands of students, and their large sale to the general practitioner of medicine, prove their practical value, though perhaps, from the scientific standpoint, they all leave something to be desired. The present work, however, is particularly well done, and deserves the best that can be said of any of these text-books.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

At a recent meeting of the West London Medical Society the treatment of appendicitis was considered, and in face of the "fièvre opératoire" which has been so widely epidemic not only amongst surgeons but also amongst physicians during the past few years it was interesting to notice that the burden of the address was the tendency of appendicitis to spontaneous recovery—if I may be allowed to use the term "spontaneous" to cover the sequences of medical treatment as opposed to surgical. (Who shall say how often the supposed successes of our treatment are *post hoc* rather than *propter hoc?*) The statistics quoted were strongly against any routine treatment of appendicitis by operation; seventy per cent of cases of appendicitis get well on careful medical treatment alone, and the mortality from all varieties of appendicitis treated thus is only five per cent. Operation during the acute stage is indeed fraught with considerable danger; it shows a death-rate of twenty per cent, figures which would seem to support strongly Broca's statement that "l'opération immediate est plus grave que l'expectation armée." This view has been quoted also by Dr. Burney Yeo, who mentions that Treves also is "stoutly opposed" to hasty operative treatment of appendicitis. Mr. Lloyd in his address declared that the large majority of cases of appendicitis require no operative treatment. Hot or cold fomentations—the latter perhaps specially in the earliest stage of inflammation—should be applied, and leeches also are useful. He is in favor of giving a mild saline aperient followed by a simple enema during the earlier period of the disease, and if there is much abdominal distention he would give turpentine also in the enema; but the question of aperients he admitted is a difficult one and open to much difference of opinion. In most cases opium in some form is advisable. As to feeding he would allow no food by the mouth in acute cases except a few teaspoonfuls of dilute peptonized milk, or hot water, or

tea. The patient must be fed by rectum, and stimulants also should usually be administered this way, but there is no great objection to the patient sipping champagne or brandy occasionally. He was doubtful whether anything is to be gained from the administration of antiseptics by the mouth; salol, ten grains, three times a day, was however suggested. The various methods of operation were then considered.

We have heard so much recently of treatment by injections and inoculations of all sorts that it is interesting to hear something of the practical results, and particularly of the failures, with these methods: Mr. W. G. Spencer opened a discussion recently at the Medical Society of London on serum and other inoculations in pyogenic infections. He thought that the administration should be as early as possible, so as to neutralize the toxins before irreparable lesions had occurred. Antistreptococcus serum has been used in erysipelas, puerperal fever, endocarditis, septic pharyngitis, malignant scarlet fever, and pneumonia; undoubtedly there have been failures, but at the same time there is some justification for the use of this treatment. To be of any value, however, the injections must be given not only early in the disease, but also in full doses and at short intervals—for instance, every three or four hours—and in severe cases it might be better to inject into the veins rather than subcutaneously. Dr. A. E. Wright pointed out the value of dead cultures of staphylococci, which had been injected in a series of cases with the view of accumulating protective substances in the tissues of the patient. This treatment has been found of value in chronic or recurrent forms of staphylococcal infection, such as boils, sycosis, and acne. In scarlet fever some of the complications are undoubtedly streptococcal in origin; but Dr. E. Goodall expressed himself as doubtful of any great value from the serum treatment; in puerperal fever also Dr. W. Gow has seen unfavorable results from serum injections. Dr. Poynton also stated that harmful results from such treatment are on record.

The part played by the pneumococcus in producing lesions of other parts of the body than the lung and pleura has been brought into prominence within the past few years. An acute inflammation of joints, a pneumococcal arthritis, is now generally recognized as a complication of pneumonia; but even more important than this is the affection of the peritoneum which sometimes occurs. Sir Dyce Duckworth and Prof. Howard Marsh recently reported at the Clinical Society the case of a woman aged twenty-seven years who within a day or two after an acute onset, with headache, rigor, and a temperature of 104°, showed signs of acute peritonitis. It was thought to be a case of typhlitis, and laparotomy was done. A dilated appendix was removed, but there was general peritonitis, and from the turbid fluid in the peritoneal cavity a pure growth of pneumococcus was obtained. Three days later fluid appeared at the left base, and an empyema was evacuated. The woman slowly recovered. A very similar case in a girl aged eight years was reported by Dr. F. Taylor; in this also a left empyema followed the peritonitis. Other cases have been recorded, and whilst in most perhaps the lung is the primary focus of infection, it may be that, as Dr. J. H. Bryant suggested, the microorganism sometimes reaches the peritoneum from the intestinal canal. But undoubtedly peritonitis is a rare complication of pneumonia. Dr. J. Fawcett stated that in 182 autopsies on cases of pneumonia there were only five in which there was peritonitis. Sir Dyce Duckworth said that it is impossible to distinguish the pneumococcal character of peritonitis unless the abdomen is opened, but suggested that the association of peritonitis with herpes might point to pneumococcal infection.

There has been considerable stir in the daily papers during the past month over the proposal to improve and extend the existing structure of St. Bartholomew's Hospital. A large section of the lay press has opposed this vigorously on the ground that such a hospital would be more useful and less costly if removed to the suburbs. All are agreed that it is most unfortunate that just at a time when King's College Hospital is appealing to the public for three hundred thousand pounds, which it sorely needs for its removal to the poor suburb of Camberwell, another great hospital should also appeal to the public for an even larger sum. But it is certain

that St. Bartholomew's serves a great need where it stands, and moreover that its present structure requires extensive additions if it is to be adapted to modern requirements. It is to be hoped that neither of these two great hospitals will be allowed to suffer from want of "the wherewithal."

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Professor Debove, dean of the Paris Faculty of Medicine, has recently described in one of his clinical lectures a curious case of diabetes without glycemia. The patient was a young woman eighteen years old, and was found to eliminate 72 grammes 50 of sugar daily. She was of a nervous temperament, and suffered from constipation and indigestion. On examining the blood only 1 gramme 80 of sugar per liter was found, which is about the normal amount. According to Professor Debove there is only one other case of this kind known, and it occurred in a patient of Kolisch and Ruber, who published the report of the case in the *Wiener klinische Wochenschrift* for June, 1897. The patient excreted 50 to 80 grammes of sugar a day, but her blood only contained 1 gramme 40 of sugar per liter.

In an article published recently in the *Presse Médicale,* Dr. Romme discussed the efficacy of omentopexia in cirrhosis of the liver in connection with an operation performed by Lenzmann, and described in the *Deutsche medicinische Wochenschrift.* The condition of the liver is not the only important factor in deciding whether the operation will be successful or not, but also the existence of a collateral circulation and the state of the heart. If the latter is very much affected the operation may have an excellent effect in reducing its amount of work; and Lenzmann describes the excellent results he obtained in a case where the heart was manifestly dilated and there was a slight degree of icterus. Two punctures, one before and one after the operation, were found necessary.

At a recent meeting of the Academy of Medicine Dr. Renaut, of Lyons, spoke of the efficacy of opotherapy in cases of urinary insufficiency. A maceration of kidney is, according to him, the most efficacious agent in opening up a kidney blocked by edema. It has a most intense action on enuresis. The normal excretion is soon brought about without the kidney being injured. The quantity of albumin found in the urine is diminished noticeably, and may disappear for a long period. When taken a certain length of time, it may cause a number of minor accidents, such as itching, urticaria, attacks of perspiration, and after its use during ten days some disturbance of the stomach. This maceration should be prepared daily. In answer to a question put by Dr. Albert Robin, Dr. Renaut remarked that the casts disappeared in this case. As for the chlorides he does not consider them a poison for the kidneys, as subcutaneous injections of saline solution are well tolerated by uremic patients. (This latter statement does not seem to be quite in accordance with recent work on the subject of elimination of the chlorides, and it may be that in certain forms of chronic nephritis large saline injections are hardly beneficial.)

During the last few years there have been several important epidemics of typhoid fever in different German towns, such as Gelsenkirchen, Saarbrück, Sarrebourg, Strasburg, and the imperial government has sought some means of checking these outbreaks. Dr. Koch, who is a member of the superior sanitary committee, believes that the disease takes place oftener by contagion than is generally thought, and that water is only a momentary vehicle of contagion. The bacillus persists in the patient a very long time, sometimes as much as six months. Witness a case cited by Danitz, of the Koch Institute, where the patient, a woman, had some bacilli in her urine, and infected her husband. To recognize the bacilli, Koch employs a medium prepared with broth, gelose, peptone, nutrose, lactose, and krystall-violet, and prepared first by Drigalski and Conradi. Colonies of typhoid bacilli grow within twenty-four hours in this medium, without any change of color, whereas coli bacilli produce a reddish coloration with litmus paper. Krystall-violet prevents the development of the germs of the air. As a result of these investigations, it was decided to isolate the patients in temporary hospitals, and to carry out most severe disinfection.

An early diagnosis was found most essential, and was made by cultures, the Widal test, or Pfeiffer's reaction on the guinea-pig. These various measures have certainly diminished the amount of sickness from typhoid fever amongst civilians as well as in the army.

It seems that tuberculosis is increasing noticeably amongst French peasants, and the reason of this is obligatory military service. Attention has already been drawn to the fact that recruits are not sufficiently examined before being incorporated into regiments, and Dr. de Lavarenne states that last year only thirty seconds was allowed for each recruit in the department of the Seine. As a result of this young men suffering from consumption in its first degree are sent into barracks, where they not only lose their strength, but also are a source of contamination for others. Certain country physicians state that they find tuberculosis in 60 to 70 per cent of the cases they are called upon to treat, and the infection is due in some cases to soldiers who come home invalided from their regiments.

Dr. von Stockum, surgeon-in-chief of the Rotterdam Municipal Hospital, has employed during the last few years a peculiar treatment for compound fractures; it had also been employed by one of his predecessors, van der Hoeven. The treatment consists in impregnating the focus of the fracture with Peru balsam. No disinfection of the limb is carried out, and only the large arteries are tied. The seat of fracture is filled with sterilized Peru balsam, the lips of the wound being held apart by pincers. The limb is moved very slightly so as to hasten the penetration of the balsam. The fracture is then reduced. If the orifice is very small, the seat of fracture is filled by means of a syringe. No gauze is used as a drain. Over this is placed a compress dipped in balsam, then some absorbent cotton, and a bandage. The fracture is then placed in a plaster cast. The first dressing is not touched for three weeks. The temperature goes up during the first four or five days, but returns to normal after the fifth or sixth day. When the dressing is taken off the wound is healed, or granulating well, and no pus is found. One or two dressings are still required in some cases. The results obtained by Dr. von Stockum are really well worth noting. Out of ninety cases, there were only four in which the treatment was unsuccessful. In three cases there was suppuration, which did not however require another operation. In one case gaseous gangrene set in, and it was found necessary to amputate. In eight cases a fistula formed, and a foreign body was usually found to be the cause of this complication. This treatment of Dr. von Stockum was described by the author at the Congress of Surgery held in Paris last October.

The treatment of fractures of the thigh has been discussed recently at several meetings of the Society of Surgery. Dr. Delbet, who belongs to the younger school of surgeons, described an apparatus which permitted one to walk, and which therefore was apt to lead to a quicker convalescence. Dr. Hennequin, who is the inventor of an apparatus known under his name, and usually applied by most French surgeons in such cases, described the advantages which resulted from the use of his apparatus. Professor Berger, who is one of the best known surgeons in France in connection with fractures and bone disease, remarked of this apparatus that it gave in almost all cases a perfect result. Exact reduction is obtained, ulterior stiffness of the knee and hip are prevented, permanent control of the fragments may be obtained, and massage can be carried out when needful. It is rare that more than one centimeter of shortening is noticed. As for apparatus which allow one to walk, Dr. Berger does not see their utility. Walking is limited and difficult under such conditions, and a limb enclosed in such an apparatus is perhaps not so well nourished. Professor Berger considers ambulatory apparatus useful in certain transverse fractures of the tibia, but not in V-shaped fractures, where such a treatment would have poor results. Dr. Lucas-Championnière also spoke enthusiastically of Dr. Hennequin's apparatus, which is far superior to all other apparatus, and especially Tillaux's, in that it allows free play of all the articulations. The application of this apparatus is most simple, it is easily watched, massage can be done readily, and the shortening is very slight. Dr. Championnière thinks it best not to use Hennequin's apparatus in fractures of the neck of the femur. Dr. Rou-

tier was not perhaps so enthusiastic, though he employs this appliance quite often. Dr. Michaux has also found this apparatus most excellent, as well as Drs. Broca and Bazy.

Professor Lejars has recently described in *La Semaine Médicale* an apparatus for fracture of the leg which he saw employed in Professor Saxtorph's service in Copenhagen. In a case of supramalleolar fracture, or of Dupuytren's fracture, the fracture is reduced, and the leg and foot are covered with a bandage of flexible gauze. A lath of lime-tree wood, about four centimeters long and two to three millimeters thick, is placed in water, which makes it more supple, and then made into a species of stirrup, one side going as high as the head of the fibula, the other to the inner condyle of the tibia. The lower portion remains a distance of about four centimeters from the sole of the foot. Small cushions of cotton-wool are used to protect the bone above and below. Another stirrup is sometimes placed. When this has been well placed, the stirrup is fixed by a first bandage of starched gauze, which is rolled around the upper part of the leg. A second bandage is placed on this; a third bandage is then placed lower down on a level with the tibiotarsal articulation, being rolled downward around the heel and back of it, so as to make a solid shell around the calcaneum. The apparatus is sufficiently dry in twenty-four hours. In ten to twelve days it is changed, and a few days after the patient can begin to walk with crutches, a thick sole being worn on the uninjured side.

QUININE AND METHYLENE BLUE IN MALARIAL INFECTION.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Reading the symposium on malarial fever in the January number of your esteemed journal I see that "the men in the South and Southwest who are leaders in medical thought in their districts and who have had large experience in the treatment of these infections," who have written the different articles on the treatment of malaria in said number of your journal, have either not taken notice of certain well established facts in regard to the antagonism between quinine and methylene blue, or have not given them correctly. Allow me to quote from a lecture I gave at the New York Post-Graduate Medical School[1] what I said on this subject: "In the year 1891 Ehrlich and Guttmann recommended methylene blue in the treatment of malaria, because they had found that the malarial parasites took up this dye, that they had an election for it. And, indeed, Guttmann observed that the parasites disappeared from the blood gradually while methylene blue was given; that the patients were cured by the destruction of the plasmodia. The reports of all observers confirmed the fact of disappearance of the parasites under methylene blue treatment. It was found that the protoplasm of the parasites shrank, became compressed, and was colored blue, but that the methylene blue did not act on the nuclei of the plasmodia; and finally, that there existed an antagonism between the action of methylene blue and quinine, namely, that quinine destroyed the nucleus of the parasite, its chromatin, and methylene blue the plasma.

"Now we know that methylene blue will have a curative effect in those forms of malaria in which the plasma is most developed, and quinine in those in which the nuclei are the most developed and the plasma more or less wanting. The form which is most decidedly affected by methylene blue is that of the crescents, which consist almost entirely of plasma, while on the other hand juvenile forms of plasmodia which have very little plasma remain unaffected by methylene blue, but are very sensitive to quinine. The full-grown parasites, the principal part of which consists almost entirely of plasma, are indifferent to quinine, but most sensitive to methylene blue; they are completely destroyed by it."

I quote these remarks because Dr. John T. Moore, who wrote the article "Substitutes for Quinine in the Treatment of Malarial Fever," which forms part of the symposium, perhaps did not read the original communication of Guttmann and Ehrlich, but only an imperfect abstract of it, for the most essential points of these authors' observations he does not consider.

Yours truly,

A. ROSE.

[1]Methylene Blue and Methyl Blue. *The Post-Graduate*, No. 9, 1901.

—THE—

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A CASE OF TOTAL LARYNGECTOMY (UNSUCCESSFUL) AND A CASE OF ABDOMINAL HYSTERECTOMY (SUCCESSFUL), IN BOTH OF WHICH MASSAGE OF THE HEART FOR CHLOROFORM COLLAPSE WAS EMPLOYED, WITH NOTES OF 25 OTHER CASES OF CARDIAC MASSAGE.

BY W. W. KEEN, M.D., LL.D., F.R.C.S. (HON.),
Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia.

A fatal result during an operation is so rare that such cases should be reported, together with the means employed for resuscitation of the patient, especially when the means are novel. On only three occasions in my entire professional life have I been so unfortunate as to have a patient die on the table. The first two were respectively cases of operation on the brain and goitre. In both of these cases hemorrhage was the cause of death, and all the usual means were unavailing.

The third case of death on the table and the first case of massage of the heart here reported is of more than usual interest not only on account of the method employed for resuscitation, though, unfortunately, it was unavailing, but because of the prior fracture of the skull with entire recovery from mental as well as physical symptoms.

The notes of the second case have been kindly sent me by Dr. Kristian Igelsrud, of Tromsö, Norway. He was present when I operated upon the first case, and as I was greatly interested in the account

of his own case, I requested him to let me have the notes for publication, which he has kindly done.

CASE I (KEEN).—*Fracture of the skull followed by aphasia and partial loss of word memory; trephining; restoration of speech; recurrent hoarseness; development of squamous epithelioma of both vocal chords; unilateral laryngectomy; recovery; total laryngectomy; death from chloroform collapse; ineffectual attempt to restore life by massage of the heart.*

The patient, John H., was first seen December 13, 1902, at the instance of Dr. Charles E. McGirk of Phillipsburg, Pa., and Drs. B. Alex. Randall and Walter J. Freeman of this city. These gentlemen furnished me with the following facts: Prior to the accident about to be described he had always enjoyed good health, and had never suffered from hoarseness or

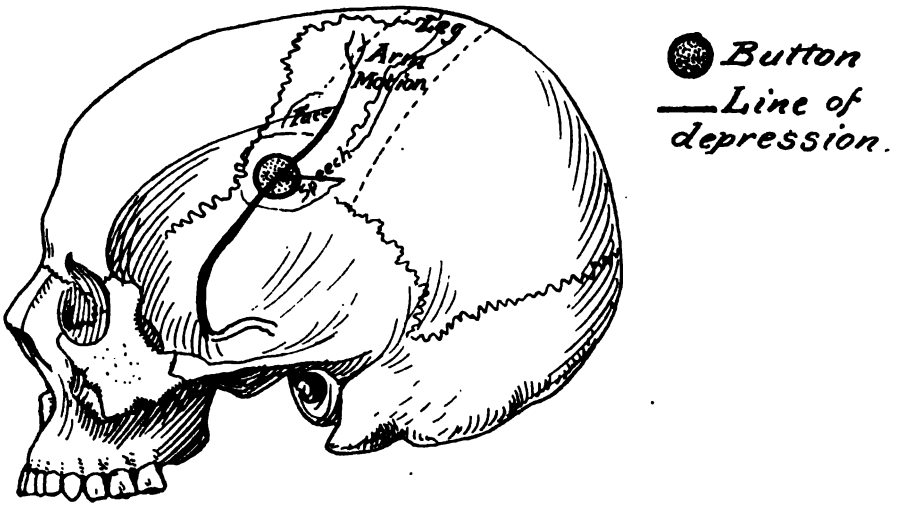

FIG. 1.—Showing the line of depression and the site of the button of bone removed (McGirk).

any other trouble with his speech. In 1900, about two years before I saw him, he was struck on the left side of the head by a piece of paving brick thrown by accident, causing a fracture of the skull. Dr. McGirk writes me that his father, Dr. J. D. McGirk, saw him about twenty minutes after the accident, found him partially conscious, but unable to speak, and made the remark that he was drunk. The patient, however, by signs conveyed to Dr. McGirk that he wanted paper and pencil, and upon this being furnished, he wrote that he was not drunk, but had been hit with a brick on the head. Dr. Charles E. McGirk saw him the next day, "when he could articulate words with great difficulty, and was suffering from motor aphasia and partial loss of word memory. He was unable to say many words, especially those beginning with 'b,' even after repeated trials. He would be talking and stop in the middle of a sentence, unable to proceed for some seconds on account of his inability to speak the remaining words, but knowing perfectly what he wished to say. Finally memory returned to him and he would complete the sentence. Along with this disturbance of speech slight hoarseness appeared, but about two months after the accident the hoarseness disappeared while the aphasia still remained." Dr. McGirk believes that the temporary hoarseness immediately after the accident was due to partial paralysis of the vocal chord, and that this may have had some influence in the later carcinomatous development.

"Some time prior to September, 1902, probably in June or July, hoarseness reappeared, and from this time the hoarseness became gradually worse, though it never caused him any dyspnea."

In September, 1902, the patient again consulted Dr. Chas. E. McGirk, who found a marked depression at the site of the old injury, and on October 3, 1902, trephined and removed the depressed bone (Figs. 1 and 2). Dr. McGirk reports that "the depression extended from before backward and was about one and a half inches in length, the deepest depression being about its middle, and extended over the lower portion of the anterior and posterior central convolutions. The inner

surface shows the groove for the middle meningeal artery and also the fractured inner surface. The external surface shows a very marked depression of the skull. He was anesthetized with ether and oxygen. He took the anesthetic with great difficulty, and was cyanotic to a greater or less degree during the entire operation." He made an uneventful convalescence; word memory returned in two weeks, but his hoarseness remained, as well as soreness, which had become worse within the prior four or five weeks. Finding that the throat condition was growing worse, with marked dyspnea, Dr. McGirk had him consult Dr. Randall December 4, 1902, and Dr. Randall asked Dr. Freeman to see him. They examined the larynx

FIG. 2.—Photograph of the button of bone. The left-hand figure shows the external surface and the depression caused by the blow. The right-hand figure shows (by a mirror) the internal surface, the fracture and depression of the bone, and the groove for the middle meningeal artery.

carefully and determined that "the rough, enlarged left vocal chord extended beyond the middle line and presented outgrowths, which are almost certainly epitheliomatous. There is little evidence of glandular involvement" (Randall). It was impossible to see the anterior portion of the right chord. They advised an operation—a unilateral laryngectomy if this would seem to promise relief, or total laryngectomy should the operation show its necessity.

Dyspnea was a very prominent symptom, and was so great that, as Dr. Randall pointed out, if exposure to the weather or any other cause should produce any slight increase in the obstruction to breathing, an instant tracheotomy would have to be done. This would be extremely difficult. The man weighed nearly 200 pounds, his neck was short and thick, and the trachea, of course, was very deeply situated.

First operation, unilateral laryngectomy, December 16, 1902. Drs. McGirk, Randall, and Freeman were kindly present. Drs. Stewart and Craig assisted me at the operation, and Dr. Spencer gave the anesthetic. In view of Dr. McGirk's experience with the anesthetic at the former operation and of the existing excessive dyspnea, I feared that a general anesthetic would cause such sudden increase of dyspnea from spasm that instantaneous tracheotomy would be necessary. I decided, therefore, to operate under local anesthesia until I could split the thyroid, and by opening it widely determine whether unilateral or complete laryngectomy would have to be done. This plan was carried out, the patient being in the Trendelenburg position. He suffered but little pain, but as soon as the larynx was widely open began to cough so constantly and violently that it was very difficult to make any accurate observation. Finally, however, we were able to ascertain clearly that the entire left vocal chord was diseased, and that a very small part of the anterior end of the right vocal chord undoubtedly was thickened, and I suspected a beginning disease there. On consultation, however, we deemed that unilateral laryngectomy, together with removal of the anterior end of the right chord, would be a sufficiently radical operation. Accordingly I removed, first, the anterior portion of the right chord without trouble. On attempting to separate the soft parts on the left side of the larynx from the thyroid cartilage, he felt so much pain in spite of the local anesthesia that I decided to give him some chloroform. This was done by means of the von Esmarch mask over the mouth and nose, with an additional piece of gauze over the laryngeal opening. He struggled a great deal. It was impossible to get him quieted with the chloroform sufficiently to go on with the operation without producing such cyanosis as to render Dr. Spencer and myself very anxious. The partial laryngectomy, however, was finally effected under very great difficulties; part of the time he was struggling and part of the time, though quiet, he was cyanotic. I then placed a tracheotomy tube above the cricoid and closed the wound. He made a perfectly smooth and good recovery in spite of the fact that the wound necessarily communicated with the fluids of the mouth. Prior to the operation, and also

during convalescence, the mouth, nose, and laryngeal wound had been sprayed with hot listerine and boric acid every two hours while he was awake. His temperature only rose above 99° for two days, the fourth and fifth, and it reached 99.8° on one occasion only. The tracheotomy tube was removed on the fifth day, and he went home on the seventh day after the operation, the wound being almost healed.

Professor Coplin, to whom the specimens were given for examination, pronounced the disease a squamous epithelioma not only of the left chord, but also beginning to involve the right chord. Naturally, therefore, I looked forward with a great deal of anxiety to his future.

About the 20th of January, 1903, his dyspnea returned and rapidly increased. On the afternoon of February 4 he returned to the city, his dyspnea being so great that his wife was afraid he would die on the train. He was able, however, to wait until February 6, the earliest date at which it was possible for me to do the operation.

Second operation, total laryngectomy, February 6. Anticipating the possibility of an instantaneous tracheotomy, chloroform and oxygen were given him, but not until he was upon the operating table. He was then placed in the Trendelenburg position, and I did a very low tracheotomy, but with a great deal of difficulty, because again, as before, when a moderate amount of chloroform was given he struggled, and when enough was given to keep him quiet he became so cyanosed as to make me very anxious even for his life. As soon as the tracheotomy was done, chloroform was given through a tube which was connected with a long rubber tube and the inhaler (Trendelenburg's apparatus). The larynx was then dissected out, the trachea divided at the first ring below the cricoid, and the entire remaining portion of the laryngeal box was removed. The hemorrhage gave a considerable amount of trouble, but was finally checked. I then sewed the anterior wall of the pharynx to the tissues around the hyoid bone and the upper end of the trachea to the skin. Just as I finished suturing the parts and was ready to close the wound, his pulse suddenly failed and his face became very blue. The operation and the administration of the chloroform were immediately stopped, pure oxygen was administered, 1/20 of a grain of strychnine was given hypodermically, artificial respiration was instituted with rhythmical traction upon the tongue (although I doubted whether, in the absence of the larynx, this would be of any value), and the battery was applied over the phrenic. In spite of all of this his heart continued to beat much faster and weaker, he became more cyanotic, and in two to three minutes the heart ceased beating and he was dead. After continuing the above means as nearly as I could judge for ten minutes, as a last resort I opened the upper abdomen, introduced my hand into the abdominal cavity, and between this hand and the right hand, which made counterpressure on the anterior wall of the chest, I masséed the heart. These efforts were continued for nearly half an hour, but without avail.

Examination of the specimen by Professor Coplin and Dr. A. G. Ellis confirmed the diagnosis of epithelioma.

CASE II (IGELSRUD).—*Abdominal hysterectomy; chloroform collapse; massage of the heart; recovery.* Dr. Igelsrud calls attention to the fact that the case is not entirely convincing, for the ordinary means for resuscitation were only tried for three to four minutes, and also traction on the tongue was employed during massage of the heart. He states, however, his personal belief that the massage of the heart was the most effectual of all the means employed. (He has not given me the date of the operation, but it was prior to 1902, probably in 1901.)

"A thin, lean, rather cachectic woman, aged forty-three, with cancer of the uterus. Total abdominal hysterectomy was performed. When the operation was almost finished the patient passed into collapse; artificial respiration, lowering of the upper portion of the bed, faradization, and the other usual means were used for about three to four minutes. The heart was then laid bare by a resection of parts of the fourth and fifth ribs. The pericardium was opened and the heart seized between the thumb and fore and middle fingers on the anterior and posterior surfaces. Quite strong and rhythmical pressure was made for about one minute, when the heart began to pulsate of itself. Then observing that the pulsations were becoming weaker, massage of the heart was practiced for

about one minute more. From that time the pulse was perceptible and the contractions of the heart became regular. Of course the estimate of time of the various stages is only approximate, as accurate observation of a timepiece is impossible under such circumstances. The patient was discharged from the hospital after five weeks."

REMARKS.

The physiologists led the way in efforts to reëstablish the pulsation of the heart, Schiff in 1874 being the first to succeed by means of rhythmical compression of the ventricles by the hand. At first defibrinated blood was injected, but later various artificial fluids more or less resembling blood in their dissolved salts and specific gravity have given even better results. Finally the addition of 1 per cent of grape-sugar added to Locke's fluid was found to be the most desirable means.

The earlier experiments were made upon the heart retained in the body, but later hearts removed from the body even for a long time and even after being frozen were more or less successfully resuscitated. Not only was the effect of filling the heart with fluid tried, but direct massage of that organ was used.

In 1889 Prus, of Lemberg (*Wiener klin. Wochenschrift,* 1900, Nos. 20 and 21), made a new series of experiments upon dogs. He experimented upon forty-four dogs killed by asphyxia, twenty-one by chloroform, and thirty-five by electricity. His attempts to resuscitate them were sometimes begun as late as an hour after the heart had ceased to contract. He then seized the heart laid bare *in sutu* with the right hand, the thumb being applied on the right ventricle, and the other fingers on the left ventricle, when he instituted rhythmical movements. Out of the 100 experiments he was successful in reëstablishing contractions of the heart forty-seven times in a wholly normal manner after efforts varying from fifteen seconds to two hours, and eight times incompletely.

In 1900 Batelli (*Jl. de Physiol. et de Pathol. Gén.,* 1900, p. 443) made further studies in the same direction. He was able to recall to life several dogs. Both he and Prus advocated the application of the method to man in case of cardiac arrest from chloroform asphyxia.

Kuliabko (*Arch. Gesammte Physiol.,* 1902, vol. xc, p. 461) established artificial circulation in a rabbit's heart which had been removed from the body. It was kept at a temperature of 40° C. and showed regular contractions. After an hour it was placed in an ice-chest for eighteen hours, when the experiment was repeated, and after less than half a minute the heart recommenced its rhythmical contractions around the openings of the vena cava. In half an hour fairly strong but rhythmical contractions of the right ventricle were observed, but none of the left. In four and a half hours the pulsations ceased. In another case after the heart had been kept twenty-four hours in ice, contractions were reëstablished, and in another case after forty-four hours pulsations continued for over three hours.

Kuliabko (*Centralblatt für Physiologie,* 1902, vol. xvi, p. 330) also reports that instead of the hearts from healthy animals which had been killed, he took the hearts from rabbits that had died, and even on the second, third, and fourth day after death, after a longer or shorter circulation of Locke's fluid, the isolated heart was made to pulsate again and continued to pulsate for several hours. In August, 1902, he tried the same experiment on the heart of a boy three months old who had died from double pneumonia. Twenty hours after death the heart was removed from the body and Locke's fluid was used. For a long time the heart remained still, but finally after about twenty minutes feeble, long, rhythmical contractions of the auricle began, which later extended to the ventricle, and finally the entire heart began to pulsate and continued to do so for over an hour. Later he says that in a number of instances on the human heart as long as thirty hours after death pulsations were produced.

Velich (*Münch. med. Woch.,* Aug. 19, 1903, p. 1421) also placed a heart removed from a dog's body in snow for six hours, and was able to reëstablish contractions both in the auricle and ventricle. Again in a heart lying in snow for eighteen hours, and again after being frozen in salt solution for twenty-four hours, contractions of the auricle and even slight contractions of the ventricles were reëstablished.

Spina, of Prag, according to Velich's

very interesting article, proposed a new and apparently less dangerous method, which so far as I know has not been adopted in man. Up to this time most of the attempts had been made by mechanical methods to start contractions of the heart together with various devices for the purpose of filling it. Spina injected into an artery (not a vein), in the direction toward the heart, a considerable quantity of normal salt solution (200 cubic centimeters in a dog) at 35° to 40° C. Just before it reaches the cavity of the heart the fluid closes the aortic valves and finds its way into the coronary arteries, thus stimulating the heart muscle itself. In this way Spina and his pupils in many researches were able almost regularly to revive the action of the heart, both in animals in which the brain and cord had been destroyed and also in animals in which the heart's action had been arrested by poisoning with alcohol or other poisons. In one instance of a dog poisoned with nicotine he states that ten minutes after the heart had remained quiet artificial respiration was begun, and 200 cubic centimeters of normal salt solution with one per cent of grape-sugar were injected into the femoral artery in the direction of the heart. Even during the injection pulsations of the heart began. These became stronger, until the circulation was reëstablished as in a normal animal.

As early as 1896 Velich, and in 1899 Gottleib and Cleghorn, made experiments with adrenalin.

The latest experimenter in this direction is Crile, of Cleveland, in whose admirable study of "Blood-pressure in Surgery," just published, the results are fully given. He rightly calls attention to the fact that *we cannot expect to restore the apparently dead to life by resuscitation of the heart alone.* Not only must the heart be made to beat, but the respiration must be reëstablished, and the vasomotor center must be stimulated into renewed activity. To massage of the heart, therefore, we must add artificial respiration, and to both of these the means to restore vasomotor activity. These means he has shown by experiment to be infusion of adrenalin in salt solution and the pneumatic rubber suit. By the above means, without the rubber suit, he has repeatedly resuscitated animals whose heart had entirely ceased to beat for fifteen minutes. The pneumatic rubber suit can be inflated at will, and thus the blood-pressure be maintained at any given level. He relates several instances in which its use in man during operations seemed to be of great value. The most striking is that of a man with a severe depressed fracture of the skull whose heart had ceased to beat for nine minutes. The heart was restored to rhythmical action with a full radial pulse for thirty-one minutes, and while the bone was being elevated he made voluntary movements of the head. I have had no experience with the pneumatic suit.

I append below résumés of all the cases in which massage of the heart has been employed which I have found recorded in surgical literature, in order that we may see the practical results in man up to the present time.

As nearly as can be judged (for some of the cases are rather vaguely referred to), massage of the heart has been attempted in twenty-seven cases. Of these twenty-four have been failures, and in three (Cases 16, 25, and 27) restoration has followed—a very meager showing so far, but not a surprising number of failures when the gravity of the condition is considered. In fact the surprising thing is rather that any of them recovered. How far the other means used have been instrumental in recalling them to life—whether these alone would have been sufficient, whether the massage of the heart was essential to their restoration to life—it is difficult, if not impossible, to state with certainty. Moreover, in a few cases success seems to have been so nearly achieved that but little more would have been necessary to turn the balance.

Of one thing I feel assured, that Crile's position is correct when he says that surgeons as well as physiologists so far have fixed their attention too exclusively upon restoring merely the pulsation of the heart. This alone will not reëstablish life. The vasomotor and the respiratory centers must be awakened into rhythmical action as well as the blood be started on its vital round before we can hope to recall the apparently—or shall we say really?—dead to life. To accomplish this, massage of the heart, artificial respiration, the infusion of adrenalin in salt solution, and I think

very possibly Crile's ingenious pneumatic rubber suit, will all aid.

The methods by which the heart has been made accessible for massage are threefold:

First, by compression between the hands, one being applied outside the chest and the other directly upon the heart after an abdominal section, but without opening the diaphragm.

Secondly, by abdominal section, and after opening the diaphragm seizing the heart within the pericardial sac.

Thirdly, by resection of the chest wall, incision of the pericardium, and grasping the heart with one or both hands.

If abdominal section has already been done, the first or second method will usually be adopted, so as to avoid delay and the additional traumatism caused by opening the chest wall. If the operation which is being done does not involve an abdominal section, then an independent quick section is to be made in order to get access to the heart.

Of the successful cases, one of them, Starling and Lane's (Case 16), was done by this method. In my own case also I practiced the same method, but I must confess that I do not think as a result of this one experience that the heart is so easily seized and manipulated as by either the second or the third method.

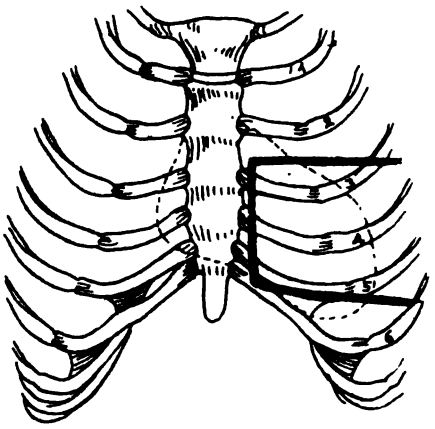

FIG. 3.—Usual incision to uncover the heart.

In the second method, either a definite incision can be made through the diaphragm to the left of the middle line and posterior to the border of the ribs, or, as in Poirier's case, the finger may be thrust through the diaphragm and the aperture enlarged simply by tearing.

The third method, exposure of the heart by resection of the chest wall, was used successfully in Igelsrud's case although the abdomen was already open. Fig. 3 shows the more usual method of gaining access to the heart. This is by resection of the third, fourth, and fifth ribs. In this particular figure I have made the incision run parallel to the third and fifth ribs, joining them by a vertical incision along

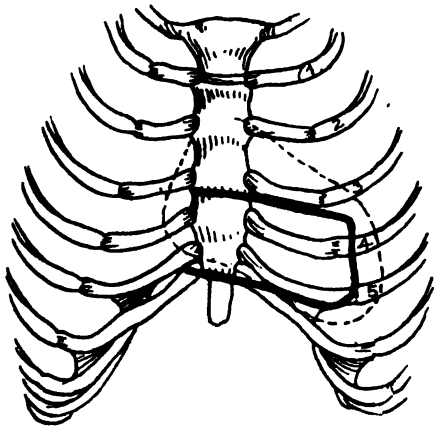

FIG. 4.—Wehr's incision to uncover the heart.

the left border of the sternum. The base or hinge of the flap is external. Different authors have preferred to make the base or hinge above, toward the median line, or below, and to make the flap rectangular or U-shaped. The great advantage of this incision is that the division of the bones can be made next the sternum through the cartilages of the ribs, and that a stout pair of scissors enables us to divide the ribs at other points. These instruments would always be in readiness.

Fig. 4 shows the incision proposed by Wehr (*Centralblatt f. Chirurgie,* 1899, Beilage, p. 74). In this incision only the fourth and fifth ribs are resected, and the base of the flap is on the right border of the sternum. This requires a saw or chisel to divide the sternum. These instruments might very possibly not be provided for the operation in hand, and of course there would not be time to disinfect them if they were not ready.

In any case care must be taken, if possible, to detach the pleura and not open its cavity, as this necessarily complicates the injury very much by adding a pneumothorax and possible collapse of the lung to the already serious condition of the patient. The pericardium is then incised, the heart is seized by the hand and rhythmical compression instituted.

CASE I.—Tuffier and Hallion (*Bull. et Mém. Soc. de Chir.*, 1898, p. 937). A man, aged twenty-four; appendicitis. On June 16, 1898, Tuffier operated and found a pericæcal abscess and gangrene of the appendix. The cavity was emptied and drained. For four days he did well. On the fifth day, during Tuffier's visit in the ward, the patient was feeling very well and asked for some wine instead of milk. Tuffier had only left his bed a few steps when he had an attack of syncope. Certainly not more than two or three minutes intervened before Tuffier was at his bedside; his body was relaxed, pupils largely dilated, respirations arrested, no pulse was discoverable, and the heart was immobile. Tuffier did not doubt that he had died as a result of an embolus. Artificial respiration and traction on the tongue were practiced, and the patient was thought to be dead. Tuffier immediately made an incision in the left third intercostal space, separating the pericardium with the index-finger, and made rhythmical compression for one or two minutes. The heart undulated at first irregularly, then followed a frank contraction, the pulse reappeared, the patient took deep inspirations, the eyes were widely open, and the pupils contracted. He turned his head as after a syncope. The wound was closed with an aseptic compress. After a few deep respirations the pulse again failed. Renewed rhythmical compressions established the circulation again for some minutes, but only to fail in spite of all his efforts. The autopsy showed a clot in the pulmonary artery with atelectasis of the left lung.

CASE II.—Bazy (*Bull. et Mém. Soc. de Chir.*, 1898, p. 939) states that in 1892 he saw one of his colleagues in the hospital employ the means described by Tuffier in a case of syncope from chloroform. The patient died.

CASE III.—Micheau (*Bull. et Mém. Soc. de Chir.*, 1898, p. 976) states that in a patient suffering from syncope following the administration of chloroform he instituted the same measures as described by Tuffier. Laying bare the heart after having used all the other means, the heart was compressed, but without result.

CASE IV.—Prus (*Wien. klin. Woch.*, No. 21, 1900, p. 486). A man, aged forty-eight, on January 19, 1900, hung himself. Wehr first did tracheotomy, and then opened the chest wall without injury to the pleura after his method. This, it is stated, was two hours after the attempted suicide. The heart showed no trace of movement. Prus seized it and began massage of the heart. At the same time air was driven into the lung by a long bellows. After the massage had been continued for fifteen minutes the first trace of independent rhythmical contraction of both auricles was observed; the systole started as a wave beginning at the junction between the auricle and ventricle and proceeded in the direction of the tip of the auricle. When massage of the heart was interrupted for some minutes the contractions of the auricle gradually became weaker until they entirely ceased. Upon renewed massage, however, they reappeared; but in spite of the continuance of the massage and injections of normal salt solution in the veins, the contractions of the auricle became gradually weaker and finally ceased.

CASE V.—Depage (*Annales Soc. Belge de Chir.*, 1901, p. 52). A man, aged forty-seven, with an irreducible inguinal hernia reaching to the knees. Radical cure was attempted. He had occasional suffocative attacks, and had the aspect of Bright's disease. The right heart was dilated and the pulse was irregular. There was a slight blowing sound with the first beat of the heart at its apex. Pulse 96; lungs normal; urine 1.031, neutral, a trace of albumin with pus, renal cells, and cylindrical epithelium. Chloroform was given with great care drop by drop. Ten grammes had been given and the patient was not completely relaxed, when he suddenly became pale, the respirations became superficial, and then ceased. The heart also ceased to beat. Artificial respiration was used with rhythmical traction on the tongue; head was depressed. Occasionally some deep inspirations were noted. After fifteen minutes an application of the cautery was made to the precordial region. No result having followed, he opened the chest by a curved linear incision at the border of the sternum from the second to the fifth rib. The flap was turned outwardly, the pericardium opened, massage of the heart with artificial respiration and rhythmical traction on the tongue was made. Slight spontane-

ous contractions of the heart followed after a few minutes, but they progressively diminished, and at the end of twenty or thirty minutes ceased entirely.

CASE VI.—Maag (*Centralbl. f. Chir.*, 1901, p. 20). A man, aged twenty-seven; nerve stretched under chloroform for sciatica. His heart was sound, there was no sugar or albumin in the urine. The patient had been a strong drinker, but of late years had entirely abjured alcohol. October 24, 1900, at 8 A.M., the narcosis was begun drop by drop on an Esmarch inhaler. After ten minutes he was sufficiently anesthetized for them to begin cleansing the area of operation. This continued for about five minutes, during which the patient lay quietly with good respiration, pulse, and contracted pupils. As the incision was made in the skin he struggled, and the anesthetist was requested to give him some more chloroform. Only a few drops were given, because almost immediately he became asphyxiated. Up to this time he had only received 15 grammes. The ordinary means of restoration were successfully used, and the operation was concluded in a few minutes without giving him any more chloroform. He, however, again became asphyxiated. The same restoratives as before, namely, traction on the tongue, artificial respiration, striking the precordium, etc., were used, but in vain. After ten or fifteen minutes tracheotomy was done and air was blown through the cannula into the lung. The patient was pulseless, without respiration, cold, and cyanotic. Accordingly the third and fourth ribs were cut close to the sternum, and a flap about 7 centimeters long reaching to the left mammary line was turned back. The hand was introduced into the pleural cavity and seized the heart in the unopened pericardium. There were no contractions. After a few rhythmical compressions the heart began to beat again feebly, and then gradually stronger and stronger. The compression was made sometimes simply by the hand which seized the heart; at other times against the posterior surface of the sternum. The air was blown into the lung through a rubber tube which fitted closely in the cannula. The nose and lips were compressed, so as to prevent the escape of the air that was blown in. After about a half-hour the first quick shallow respiration was taken, and these became deeper and deeper, but there seemed to be only one of these voluntary respirations; but when air was blown in they were repeated, so that there were first two and then three spontaneous respirations, and so on. Three hours after the anesthetic was begun the patient was able voluntarily to breathe about ten times. By 11.30 he began suddenly to take deep and regular respirations, the heart was beating seventy times in the minute, and only occasional compressions were made in order to stimulate it. The arteries in the area of the resection now began to bleed and were ligated. The tracheotomy wound also began to bleed, the pupils were contracted, the color of the face had been for some time normal, and the patient shut his mouth so tight that it was almost impossible to open it. The wounds were sewed, the resection wound only partially, so that if necessary the heart could be compressed anew. Some sterile strips of gauze were carried into the pleural cavity, the wound was dressed, and the patient placed in bed.

It seemed as if all danger were over excepting that the patient was not clear mentally. At 12 o'clock, as the surgeon was about to leave the hospital, his breathing suddenly became weaker, and after a few minutes ceased entirely. Air was again blown into the lungs, artificial respiration, faradism of the phrenic, infusions of oil of camphor, salt solution, etc., were used. Under these means the heart beat full and regularly until 8 P.M., when it suddenly ceased. During all these twelve hours the patient resembled one who was asleep, the color of the face was red, and the pupils contracted. The moment, however, that the heart contractions ceased he looked as one dead; the temperature fell slowly—at 4 P.M. 36.9°; at 5, 36°; at 6, 35.6°; at 7.30, 34°C. With this considerable meteorism developed, the stomach and the intestines being distended with the air that had been blown in.

Necropsy twenty hours after cessation of the heart pulsation. There were slight pleural ecchymoses, adhesions of the posterior portion of the right pleura, the heart was soft, valves and aorta sound, the diaphragm arched strongly upward by the distention of the stomach and intestines; otherwise nothing abnormal was noted. [This same case is also described by Frey-

berger, and is the subject of an editorial notice in the *Lancet* of April 13, 1901, p. 1092.]

CASE VII.—Mauclaire (*Gaz. des Hôp.*, Dec. 5, 1901, p. 1347-8) does not give the date. His account is as follows: "I have had occasion to put in practice direct massage of the heart once for syncope coming on at the end of an operation. Neither a return of respiration nor of pulsation of the heart was observed. The heart was reached by a resection of the fifth and sixth ribs, the pericardium was opened, and the heart seized in the hand. In view of the pneumothorax which inevitably is produced in this heroic intervention, I believe that it would be better to open the abdomen and incise the diaphragm corresponding to the pericardium."

CASE VIII.—Mauclaire (*Gaz. des Hôp.*, June 24, 1902, p. 701). April 14, 1902, a man, aged twenty, was crushed between a wall and a wagon wheel. There was a fracture of the third, fourth, and fifth ribs to the right and the second and third ribs to the left. There were exaggerated resonance on the left side of the thorax. The precordial dulness was not increased. The sounds of the heart were deadened and distant, and crepitus was present. The patient was dull and stupid, the respiration was arrested from time to time, the face pale, the pulse very slow, and it seemed that he would die from syncope. In view of the probability of lesion of the thoracic viscera and of some bloody exudate either inside or outside the pericardium, he decided to explore the pericardium and the heart, not by the anterior thoracic route, but by the diaphragmatic route. Chloroform was given. An incision was made from the xiphoid appendix to the umbilicus, the abdomen opened, the hand of an assistant pressed down the left lobe of the liver, and the stomach was depressed by compresses. The respiratory movements rendered the incision of the diaphragm very slow. Through the diaphragm the beating of the apex of the heart could be seen. It was not possible to determine whether there was any blood in the pericardium. An incision was made 5 to 6 centimeters to the right of the point where the beating of the apex was felt. The incision was made in several steps because of the depth of the region and the movements of the diaphragm, the xiphoid cartilage being subluxated upward. The pericardium being opened, a teaspoonful of a serous nonbloody fluid escaped, and along with it a puff of air showing the existence of a pneumopericardium, as was thought, but as no such lesion was found at the autopsy it was presumed that the movements of the diaphragm sucked the air into the pericardial cavity and then expelled it. A transverse incision of 3 centimeters made much more facile the introduction of the finger to explore the heart. A drain was then inserted in the incision through the diaphragm, but in such a manner that it projected but little into the pericardial cavity. It was secured by catgut to the edges of the diaphragmatic incision, which then was closed, followed by closure of the external wound. The patient, without showing symptoms of asphyxia or hemorrhage, died at 1 A.M.

The necropsy showed that there was no important lesion of the pericardium. There was a contusion on the posterior surface of the heart with some slight subpericardial ecchymoses.

The operation, as he points out in this case, was exploratory and not therapeutic. No massage of the heart was made.

He then recounts two cases of massage of the heart by the anterior thoracic route, Cases 9 and 10, as follow:

CASE IX (Mauclaire).—In February, 1899, he resected the sternal extremities of the third, fourth, and fifth costal cartilages, producing a pneumothorax. The pericardium was opened in order to massé the heart as a consequence of chloroform syncope, but without result. No further details are given.

CASE X (Mauclaire).—In May, 1902, he saw a case of syncope from chloroform. After artificial respiration, rhythmical traction on the tongue, and tracheotomy produced no effect, he made a similar incision through the diaphragm and practiced rhythmical massage of the heart, without result.

The operative method which he recommends is slightly oblique from right to left and from in front backward, starting from the middle of the concavity of the diaphragm slightly in front of its summit. The beating of the heart against the diaphragm can be recognized, and the inci-

sion is a little in front of this point. The incision should be 4 to 5 centimeters long in the direction of the point of the heart, but without involving it. As soon as the diaphragm is penetrated, the rest of the incision should be made with scissors on the forefinger as a guide.

CASE XI.—Poirier (*Bull. et Mém. Soc. de Chir.*, 1902, p. 43). December 5, 1901; a woman aged fifty-eight. She was very cachectic and so feeble that she could not walk. The diagnosis was a gastric tumor. All food was rejected. Operation under chloroform. She was anesthetized quickly and easily without any resistance or mental fright. The stomach was found adherent throughout to the liver by old adhesions. They were separated without much trouble. A few sutures were placed in the liver to arrest a little oozing. A very extensive disease of the stomach being discovered, a posterior gastroenterostomy was decided upon. As the omentum was raised the patient made a few movements and the recti muscles contracted. The anesthetist was requested to give a little more chloroform. Scarcely had the compress been placed over her face when her heart suddenly ceased to beat. She became very pale, pupils dilated, respirations ceased, and everything characteristic of death was present. At the same instant rhythmical traction of the tongue, artificial respiration, and flagellation were all used, but without the least result. Tracheotomy was immediately done by puncture and oxygen administered; the phrenics were also stimulated by electricity, movements of the chest only being obtained. As all efforts seemed to be in vain, by suddenly pushing his thumb Poirier split the ensiform portion of the diaphragm and seized the heart. This was found relaxed and empty. No part of it responded to pressure or pinching. Artificial respiration was continued for a long time, but without avail. The amount of chloroform used was between 30 and 35 grammes.

CASES XII and XIII.—Gallet (*Rev. de Chirurgie*, 1902, vol. xxvi, p. 625) states that his colleague, Dejace, has practiced massage of the heart twice without result.

CASE XIV.—Gallet (*Jl. de Chir. et Annales de la Soc. Belge de Chir.*, November-December, 1902, p. 165). A man aged twenty-eight; inguinal hernia with a tuberculous peritonitis discovered at autopsy. After a few inhalations of chloroform, he died from cardiac syncope. The usual means were employed in vain. Massage of the heart was made twenty minutes after the syncope began, the chest being opened, but the pericardium not opened. The massage was done rhythmically, and also artificial respiration. The blood flowed in abundance in the jugular vein, and even at the level of the femoral artery the finger could perceive a pulse at each artificial systole. The only evidence of returning life were fibrillar trembling of the heart and slight coloration of the face.

CASE XV.—Gallet (same reference). A woman, aged thirty, with a pelvic abscess. The same history as the preceding case, excepting that the massage of the heart was performed a half-hour after the syncope began, and that the pericardium was opened.

In experimenting on a dog he found that the arterial pressure in a large vessel is about 14 centimeters and is elevated slightly at each systole. When cardiac syncope occurs, the pressure descends to zero, and with each pressure of the heart only rises to 4 or 5 centimeters, and immediately falls to zero in the interval between the compressions. In the veins the pressure only rises from 2 to 3 centimeters above zero. Gallet thinks that such an intervention is useless and also dangerous, no matter by what route the heart is reached.

CASE XVI.—Starling and Lane (*Lancet*, Nov. 22, 1902, p. 1397). A man sixty-five years of age was operated on by abdominal section for adhesions about the colon. Ether was given by a Hewitt's large-bore inhaler, preceded by gas. The patient was of the thin, nervous type, with a muffled bruit of the first sound at the apex. The anesthesia proceeded normally. The appendix was removed. The pulse then began to flag; the respiration, which was shallow, was not affected. More ether was given, but during the trimming of the stump both pulse and respiration stopped altogether. Artificial respiration was tried without effect. Mr. Lane, the surgeon, then introduced his hand through the abdominal incision, and through the unopened diaphragm squeezed the motionless heart once or twice. It started

beating again, but the respirations were still in abeyance. Artificial respiration was still continued, and other restorative measures adopted. The artificial respiration was continued for about twelve minutes, when natural respiration began again with a long sighing respiration. The operation was then completed without any further anesthetic. The patient felt the skin sutures slightly. Excepting for a little soreness about the diaphragm for two days the patient made a good recovery.

CASE XVII.—Zesas (*Centralblatt f. Chirurgie,* 1903, p. 588) relates that in 1880, while he was assistant to Niehaus in Berne, he observed the following case: A man of forty, who was operated upon for goitre, which was producing both dysphagia and dyspnea. Heart and lungs were normal, no arteriosclerosis, urine normal. The narcosis was proceeding regularly, when suddenly, before the beginning of the operation, his breathing ceased and he became cyanotic. The pupils were widely dilated and immobile, pulse disappeared, no trace of heart contraction was either felt or heard. Artificial respiration was used for some time, when Niehaus resected the ribs, laid bare the heart, and began rhythmical compression. Artificial respiration was continued. The heart, which at first was soft, became somewhat firmer, later twitchings were felt in its muscular wall, but there was never a normal contraction. The necropsy by Langhans showed nothing abnormal.

CASE XVIII.—Sick (*Centralblatt f. Chirurgie,* Sept. 5, 1903, p. 981). A boy of fifteen with tuberculous ascites, but with normal lungs and heart, was operated on December 18, 1902, by laparotomy. About one liter of turbid serum was removed. In the parietal and visceral peritoneum and the mesentery countless tubercles were discovered. The liver and spleen were enlarged. As he was about to close the wound the patient began to struggle and vomit. Chloroform was therefore again given in order to quiet him. Only a few drops were given, but in from five to ten minutes sudden cyanosis set in and the pulse ceased, breathing continued for a moment, and then also ceased. The upper air-passages were free. Artificial respiration and compression of the heart through the chest wall were instituted; breathing returned for a minute, and the dilated pupils contracted. The cyanosis was unaltered; the pulse could not be felt, but slight pulsation of the heart could be heard; breathing and the heart's action, however, again ceased. The same means for restoring were repeated, and continued for half an hour without result. At this moment Sick entered the room. There was no movement of the heart; the pupils were widely dilated, cyanosis was marked, the whole body cold. He immediately exposed the heart by the method of Rotter. It was now three-quarters of an hour since the heart ceased to beat. The flaps did not bleed, the pericardium was also bloodless, the heart lay relaxed and was cool. Artificial respiration was continued, beginning with energetic rhythmical compression of the heart itself. After a quarter of an hour breathing returned, and the first perceptible systole was observed. This had been preceded by irregular vermiform twitching of the muscle of the heart. The first contraction and firm consistence of the heart muscle followed directly as a result of hot compresses, which during the compression of the heart were quickly and constantly changed and applied to the heart. The patient also had applications of hot towels and a hot enema. A half-hour after laying bare the heart—that is, one and one-quarter hours after disappearance of all signs of life—the heart was beating regularly and strongly. Breathing returned, the pupils were normal, his color was good, his radial pulse could readily be felt. The pericardium, therefore, was closed with a continuous catgut suture; the slightly bleeding walls of the thorax were closed with tamponage. Two hours after the termination of the operation the patient became conscious, and complained of great thirst and dyspnea. Respirations 60, pulse 144. Camphor, salt solution, with some alcohol, etc., were used, and the condition of the patient remained about the same for twenty-four hours. His speech was indistinct, but not unintelligible. After this time he collapsed, and after suffering with great dyspnea died three hours after return of unconsciousness.

The necropsy showed a firm contraction of the heart, a right fibrinous pericarditis, an old double pleurisy, recent

swelling of the liver and spleen, and marked tuberculosis of the peritoneum and mesentery.

CASE XIX.—Djemil Pacha (*New York Medical Record,* Jan. 23, 1904, p. 146) relates the case of a man of thirty, upon whom he was operating for fistula in ano, who had inhaled 10 grammes of chloroform, when heart syncope occurred. "After two minutes' trial of ordinary means to restore animation without success, he opened the thorax and practiced massage of the heart, which had ceased to beat. The heart movements were reëstablished and some respirations were secured. Unhappily the patient succumbed."

Dr. Geo. W. Crile, of Cleveland, Ohio, has kindly furnished me with the following cases:

CASES XX and XXI (Crile).—Two Hungarian laborers were struck by a pony engine near Lakeside Hospital, causing compound depressed fractures of the occipital bone and compound fracture of the base of the skull. On arriving at the hospital both were in a dying condition. One died on being carried in to the accident room. Nine minutes later efforts at resuscitation were begun. This consisted in rhythmic pressure upon the thorax over the heart, artificial respiration by means of the Fell-O'Dwyer apparatus, the infusion of 1-to-50,000 solution of adrenalin chloride into the median basilic vein, and the application of the pneumatic rubber suit. Directly following this the heart suddenly resumed a good, vigorous action, more vigorous than the normal. This continued for twenty-eight minutes, when the circulation failed. He did not regain consciousness, and spontaneous respirations were not reëstablished. At autopsy it was found that the base of the skull was severely crushed, and with it the tissues of the brain.

The second patient was not observed during the resuscitation of the first, and when it was obvious that the first one could not be resuscitated, I examined the second case and found him dead. From the time of this observation until the efforts at resuscitation were begun was eight minutes. Precisely the same treatment was carried out in this case as in the first. In sixteen minutes the heart suddenly began to beat strongly as in the first case, also showing an overaction at first. At that time Dr. Ford made a blood-pressure observation with a Riva-Rocci sphygmomanometer, and found it to be 80. The pulse was full, regular, and about normal rhythm. Spontaneous respirations soon began, and his condition seemed promising. His head was scrubbed, shaved, and prepared for operation. An incision was made, the depressed skull was raised, bleeding arrested, and the wound closed. During the operation the patient moved his head rather vigorously away from the operative field, but uttered no sound. During this time spontaneous respiration was maintained. The patient lived thirty-four minutes, when the heart and respiration rather rapidly failed, and he died. Further efforts were of no avail. At autopsy the brain showed extensive lacerations at the base. In both cases the lesions were necessarily fatal.

CASE XXII (Crile).—Male, aged thirty-eight; tumor at the base of the brain. Died during operation; resuscitated; died again two hours later. The patient presented a clear history of a tumor of the brain, which was supposed to be located well down toward the base. A large osteoplastic flap had been made, through which the right side of the temporo-sphenoidal and occipital lobes as well as the cerebellum were explored. The tumor was located underneath the occipital lobe, and while raising up this lobe and trying to dislodge the tumor, the patient, who had been growing weaker during the operation, suddenly collapsed and died. The rubber suit had been applied and had been inflated during the failure of the circulation. In eight minutes an infusion of adrenalin chloride, 1 to 25,000, in normal saline solution was administered in the median basilic vein. Artificial respirations were maintained by means of the Fell-O'Dwyer apparatus, and rhythmic pressure upon the thorax over the heart was systematically made. The pressure in the rubber suit was increased. In nine minutes after beginning of resuscitation, and seventeen minutes after complete cessation of the heart, the latter suddenly began to beat, and in about twelve minutes spontaneous respirations were reëstablished. The wound was then closed and the patient removed to the ward, during which time a continuous flow of adrenalir

solution at the rate of 3 cubic centimeters per minute was continued. The patient died two hours after the time of the resuscitation.

CASE XXIII (Crile).—Male, forty years old; struck by a telephone wire falling across the street-car conductor. Was seen at the morgue 2½ hours after the accident occurred. From that time attempts at resuscitation were made by Drs. Ford, Heath, and Dickison, as in the cases above described. Resuscitation was not accomplished. Rigor mortis was in evidence at the time of beginning the attempt at resuscitation.

CASE XXIV (Crile).—Electric lineman, aged twenty-six. While repairing a wire received an electric shock, causing his immediate death while suspended from the wire about thirty feet above the surface of the ground. Four hours later an attempt at resuscitation by Drs. Lower and Ford by the above methods was made, but did not succeed.

CASE XXV (Crile).—Sudden death during excision of exophthalmic goitre, Lakeside Hospital, Feb. 2, 1904. Female, aged twenty-eight, who had been in the hospital for nine weeks for treatment of exophthalmic goitre, by medical means had not improved. During this time the pulse varied from 90 to 150. The exophthalmia became more marked. All her nervous symptoms were greatly increased, there being delirium at times during the week past. There were attacks of syncope, though in bed and at the most perfect rest. The patient was operated under ether anesthesia, with every precaution against the loss of blood or the manipulation of the tumor. During the operation her general condition was closely watched by her physician, Dr. H. J. Lee. The heart had been beating at the rate of 144 to 150 per minute during the entire operation. After the completion of the dissection, and after almost all of the ligatures had been tied, the patient went into a sudden collapse. The heart's action entirely ceased; respiration continued for less than a minute later. A pneumatic rubber suit as a precautionary measure had been put on, but not inflated, before the operation was begun. Rhythmic pressure upon the thorax over the heart was at once made, and the rubber suit inflated as rapidly as possible. After an interval of between five and six minutes the heart slowly began to recover its beat and the circulation was reëstablished. It was intended to use the infusion of adrenalin, which was ready to be given just as the heart began beating. Spontaneous respiration was resumed. The operation was completed, and the patient sent to bed with the circulation supported by the rubber suit, which was gradually decompressed during a period of one and a half hours. Following this the patient did well. The pulse in the meantime had fallen from 160 to 132.

CASE XXVI.—Keen (*vide ante*).

CASE XXVII.—Igelsrud (*vide ante*).

[*Postscript.* — By an unaccountable oversight, although I had a note of the case of massage of the heart reported by Dr. Cohen in the *Journal of the American Medical Association,* November 7, 1903, it was omitted from my tables. This would make 28 cases and 4 recoveries.]

SOME OBSERVATIONS ON THE SURGICAL PHYSIOLOGY OF THE VASCULAR SYSTEM.[1]

BY GEORGE W. CRILE, M.D.,
Cleveland, O.

The privilege of presenting a paper before the W. W. Keen Surgical Society is very much appreciated, and in view of the high standard of lectures by the brilliant coterie of teachers of Jefferson Medical College, the hazard is equally realized. Because I have been particularly desirous of again calling attention to the importance of making a more practical application of some of the facts of physiology to surgical practice, I have chosen for my subject "Some Observations on the Surgical Physiology of the Vascular System." In the outset I wish to state that I have nothing new to present to you, but shall hope to offer some suggestions for research for development in this important field.

The normal heart muscle is characterized by its capacity for work without fatigue. This view is supported by such observations as the vast amount of work it is known to perform in physical endurance tests, the remarkable increase in its

[1] An address before the W. W. Keen Surgical Society of the Jefferson Medical College.

work in certain valvular lesions, its ability to force the blood in sufficient quantity through the peripheral circulation in the presence of extreme arteriosclerosis in cases in which the systolic blood-pressure may be as high as 300 millimeters mercury, its ability to continue its work when its nerve mechanism is wholly severed, when the animal is not only decapitated but when the peripheral resistance is raised higher than normal, its ability to resume and continue rhythmic contractions when it has been kept on ice as long as forty-four hours after death.

The normal heart, then, is an organ of great functional durability and not readily fatigued. What is the relation of the cardiac action to the blood-pressure? It is a secondary factor. What is its relation to the rate of flow of blood? It is primary. Now the pulse is the conventional clinical index of the circulatory state. What part in the alterations in the pulse, in injuries, in operations, and in infections does the heart play? Only a secondary part.

Unlike the cardiac muscle, the muscle of the walls of the blood-vessels has no automatic action independent of the nervous system. It is under its continuous regulation. The vasomotor centers are in constant action, a delicately responsive action of a remarkably complex nature.

What part does the vasomotor center play in the creation and maintenance of the blood-pressure? From the standpoint of physics it is clear that the key to the blood-pressure lies in the peripheral resistance, but the peripheral resistance is wholly dependent upon the vasomotor centers. The action of the vasomotor center, then, primarily creates the blood-pressure. Roughly speaking, the heart causes the flow of blood, and the vasomotor mechanism determines the height of the blood-pressure. The pulse characteristics of the greatest clinical importance are therefore of vasomotor origin.

A bounding pulse indicates an increased action of the vasomotor centers; a soft pulse, a diminished action of these centers. The bounding pulse in the period of development of many of the acute infections is caused by a pathologic stimulation of the vasomotor centers. The fall of the blood-pressure to the normal as the process subsides is an indication that the toxins have been neutralized and eliminated, and have ceased forming. But the terminal fall in fatal cases indicates a breakdown of the vasomotor centers.

In certain other acute diseases the toxic products depress the vasomotor centers—notably typhoid fever. Will some future investigator not clearly elucidate the fundamental facts of surgical physiology upon which the characteristic circulatory phenomena of typhoid and peritonitis rest? We may at present go as far as to say that in typhoid the vasomotor centers are depressed; in peritonitis they are stimulated. What a splendid problem for research is presented by the following circulatory characteristics in these two diseases, and of how much importance will such discoveries be in the diagnosis of typhoid perforation! In typhoid the pulse is of large volume; in peritonitis it is small. In typhoid the pulse is soft; in peritonitis, hard. In typhoid it is relatively slow; in peritonitis it is rapid. In typhoid, dicrotism is usually present; in peritonitis, rarely or never. In typhoid the wave is long; in peritonitis, short. In typhoid, capillary pulse is frequently present; in peritonitis, rarely or never. In typhoid there is usually an increased blood-supply, frequently not well oxidized, to the face, the front and sides of the neck, and the upper part of the thorax, giving an almost characteristic dusky redness; in peritonitis there is a diminished supply of blood to this territory, giving an almost characteristic pallor.

In typhoid, then, the pulse is of large volume, low tension, frequently or usually dicrotic, has a long wave, is of relatively slow rhythm, and frequently capillary. The face and neck are peculiarly flushed. In peritonitis the pulse is of small volume, high tension, relatively rapid, rarely or never dicrotic or capillary, and it presents a short wave. The face and neck are peculiarly pale.

The clinical picture of the circulation in typhoid and peritonitis presents physiologic antitheses. The actual blood-pressure alterations were studied by means of a sphygmomanometer in both diseases. The mean normal systolic blood-pressure may be stated to be 130 to 135 millimeters. In observations upon one hundred and fifteen cases of uncomplicated typhoid with normal arteries, the maximum pressure was 138 millimeters; the minimum, 72; the mean, 104. In the first

week the mean pressure was 115 millimeters; the second week, 106; the third, 104; the fourth, 96; the fifth, 98. In twenty-one cases of fully developed, acute peritonitis the maximum blood-pressure was 208; the minimum, 148; the mean, 165 millimeters.

That the rise was due to the toxic products of the infection was supported by the observation of a similar rise in the blood-pressure in acute infections in various other parts of the body, and following the injection of Coley's toxins in the treatment of sarcomata; in the latter instance a rise of from fifteen to thirty millimeters was noted even before either the temperature or the pulse showed any alteration.

In six cases of peritonitis following typhoid perforation, a rise varying from eight to forty millimeters was noted. In three cases the first observations were made late; in two they were made early, and the pressure showed an early rise. The physiology of the circulation is sufficiently understood to enable us to at once conclude that the increase in the blood-pressure is due to the increased action of the vasomotor center. This brief allusion to the surgical physiology of typhoid perforation is made for the purpose of calling attention to a tempting research problem.

Let us allude briefly to a few points in the surgical physiology of injuries and operations. The simultaneous slowing of the heart and the rise in the blood-pressure in many cases of depressed fracture and cerebral hemorrhage are but plain translations of the simple laboratory experiment of simultaneous mechanical stimulation of the vasomotor and the cardioinhibitory centers. In the slowed pulse and high blood-pressure in apoplexy how frequently is the unthinking clinician led into a position of false security. Even the beginner in physiology knows that asphyxia is a marked vasomotor stimulant, causing a rise in the blood-pressure and a slowing of the pulse rate, yet the interne when the patient becomes cyanotic in an anesthetic difficulty usually takes much comfort in the full, regular, strong pulse, which is characteristic of the first stage of death by asphyxia. Or realizing that his patient is not exchanging air because of the recession of the tongue, drags this organ forward with more energy than judgment, causing thereby a reflex inhibition of the respiration he is trying to restore. Seeing no result he thrusts a sponge deep into the pharynx of the patient, making the inhibition he is striving to overcome doubly sure by mechanical stimulation of the superior terminals of the superior laryngeal nerve. Physiologic relief usually comes by his transferring his energies to artificial respiration, giving the much needed rest to the tongue, pharynx, and larynx, permitting the resumption of spontaneous respiration. Should the effort take the form of sudden violent pressure upon the thorax over the heart, the action of this organ, owing to the relaxed thoracic wall, may be temporarily impaired.

One might, in passing, refer to the reflex inhibition of the heart and of the respiration in operations upon the larynx; to the difficulty of diagnosticating at first sight between foreign bodies in the pharynx and in the larynx, since either may cause inhibition; to the cause of sudden death in blows upon the larynx and in throttling, as well as to the physiologic antithesis of the trachea—injuries or operations upon which, barring obstruction, cannot cause inhibition of either the heart or respiration, hence cannot cause immediate death. One might mention that the importance attributed to the so-called solar plexus blow is not founded on fact, that even crushing this structure cannot cause immediate death; that fatal blows upon the lower ribs or pit of the stomach usually cause muscular relaxation and are due to direct traumatism to the heart; that manipulation of the visceral mucosa causes but little circulatory disturbance, but that manipulation of the peritoneum causes disturbance of the circulation in direct proportion to the amount of manipulation and the area involved, so that as definite a dosage of shock may be administered as of calomel; that if the operator sponged twice where once would do, he has physiologically inflicted two laparotomies upon his patient instead of one; that the omentum is the physiologic antithesis of the peritoneum, is almost shock proof, and should be used as a surgical buffer; that trauma of the testicles and spermatic cord causes a marked fall in the blood-pressure by producing a dilatation of the vessels in the splanchnic area, but that trauma of the uterus, ovaries, and

tubes causes a marked rise; that manipulation of the sigmoid and the rectum from the pelvic side, dilatation of the cervix, divulsion of the sphincter ani, and certain operations upon the vagina cause a marked stimulation of the respiration, especially its inspiratory phase, which, should the anesthetizer not be warned, may, especially if chloroform anesthesia is being administered, cause dangerous narcosis resulting in collapse and even death.

One might direct attention to the frequent misinterpretation of the physiologic increase in blood-pressure; hence pulse, during operations upon the extremities in traumatic cases, which is entirely due to the mechanical stimulation of the sensory nerves, and which is certain to be followed by a fall proportionately lower than it was before. This false encouragement tends to lead to too extensive operative procedures.

The surgical physiology of the circulation, we believe, permits us at present to say that since the vasomotor centers in what is called operative shock are exhausted, vasomotor stimulants in the form of drugs are no more indicated than are vasomotor stimulants in the form of additional traumatism; that since the heart is not primarily involved, and since it has but slight power of raising the blood-pressure at best, but little can be expected of cardiac stimulation.

The *sine qua non* in the relief of the low blood-pressure is a peripheral resistance. Therapeutically, then, it must be obtained, if at all, by drugs acting upon the walls of the blood-vessels. Adrenalin is the most powerful drug thus acting. Its value is still in the experimental stage. Among the methods proposed for securing a peripheral resistance is the rubber pneumatic suit, which gives a definite control over the circulation, as measured by the systolic blood-pressure, of from 25 to 50 millimeters mercury. Decompression may be gradually made. By this means the patient may, during the operation, be placed in almost any posture as the blood may be delivered against gravity to the right heart. Even immediately after apparent death, when all the organs are sound, by rhythmic pressure upon the thorax over the heart, artificial respiration, and the maintenance of a certain peripheral resistance by means of an infusion of adrenalin chloride in saline solution, 1:25,000, or by the application of surface pressure by inflation of the pneumatic rubber suit, animation may be reestablished. Recently while excising an exophthalmic goitre, suddenly and without warning animation was suspended for between five and six minutes. By the prompt application of this method animation completely returned. In another a distinct circulation was secured after complete arrest of 11 minutes; in another, 18 minutes; and in another, 24 minutes. None of the latter cases finally survived. In animals, even after fifteen minutes of conventional death, life was restored.

In Summary.—Border-land studies of physiology and surgery seem to teach us that the great principles established in the laboratory of physiology may be translated into the language of the surgical operating-room; that the knowledge of function should be as full and accurate as the knowledge of form; that while human form has been minutely studied in the laboratory on the dead subject, the surgical knowledge of human life has in the past been acquired at random upon the operating table; that circulatory phenomena observed in the operating-room conform to definite laws; and that while present physiologic knowledge gives us very considerable control over the circulation during life and a fair promise to reanimate certain of the recently dead, only the title of the great book of surgical physiology has been written, and the entire volume of knowledge upon this subject remains for the younger generation to supply.

THE ADVANTAGES OF ABDOMINAL OVER VAGINAL HYSTERECTOMY IN CARCINOMA.[1]

BY JOHN B. DEAVER, M.D.,
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One of the most deadly forms of cancer is that of the uterus. The fact that cancer of the uterus appears in many instances insidiously makes it all the more serious and more likely to be overlooked than similar conditions in other parts of the body.

The writer sees a large number of cases

[1]Read at the meeting of the Philadelphia Academy of Surgery, March 7, 1904.

of uterine carcinoma each year, many of which have passed beyond the stage for operation. Unfortunately many of the subjects of this disease suffer from symptoms not at all well defined, are free from pain, and have but little discharge until the growth has become so extensive as to forbid radical interference; for this reason the family doctor is often unaware of the real nature of the disease until it is too late to resort to surgical interference.

Irregular bleedings from the uterus, whether before, during, or after the menopause, should excite the apprehension of the general practitioner, as well as the surgeon, to investigate at any rate. It is absurd to consider feelings of delicacy and allow them to prevent an inspection of the cervix and palpation of the body of the uterus; nor in doubtful cases should fear of consequences deter resort to curettage with examination of the scrapings. Negative findings by the pathologist should be accepted with great reserve and not allowed to controvert unmistakable clinical symptoms, especially in women approaching or past the menopause. I emphasize the latter because, as is well known, epithelioma rarely begins until after the child-bearing period.

The differentiation between hemorrhagic endometritis and commencing malignant disease is not always possible; in fact, it is the practice of the writer in those cases of hemorrhagic endometritis occurring about the change of life, with a large and flabby uterus and a malignant family history, to make a complete removal of the uterus.

In hemorrhagic or hypertrophic endometritis with foul-smelling discharge, the uterus should be curetted and the findings examined microscopically. A negative finding does not necessarily prove the absence of carcinoma, as the curette may have escaped the cancer area, or the carcinoma be within the uterine muscle. Excision of a small portion of the uterine tissue for microscopical examination can only be considered where the disease is of the cervix.

The class of cases of carcinoma of the uterus which perplex the surgeon most in determining what is best to do are those which are not seen early; when it is questionable whether the tissues outside the uterus are involved, rendering it difficult to determine even the propriety of radical interference. The most common site of carcinoma of the uterus is the cervix, which is usually squamous-celled, and early in the disease is essentially a local process, hard and indurated, with papillæ elevated from the surface of the mucous membrane. These papillæ increase and enlarge, giving rise to the cauliflower-like growth so often seen; ulceration and necrosis soon follow, implicating the vaginal vault, the broad ligaments, the bladder, and rectum. When the case has assumed this stage radical treatment is, as a matter of course, not to be considered. One of the important questions to be decided in the operation for radical cure of carcinoma, be it situated in the uterus or elsewhere, is: Can the excision of the cancer area be performed by section through normal tissue?

For the relief of the discharge, the bleeding, or the pain in advanced carcinoma of the uterus, local measures, as the curette and cautery, are more efficacious than the use of the knife. The most careful bimanual examination must be made to determine the advisability of radical operation, also must the patient's general condition and the absence of other organic lesion be favorable. The radical operation is, in the writer's judgment, only to be considered in the early stages of the disease. The writer has found that the pain consequent upon the recurrence of carcinoma following late and extensive operation is greater than in cases of the kind which have been curetted and cauterized.

The writer practices and strongly advocates total ablation of the uterus by the abdominal route in early carcinoma of the cervix. I feel sure this operation promises more, both immediately and ultimately, than does the removal by the vaginal route. In the early stages I believe complete removal of the uterus, broad ligaments, and the lymph channels in the latter, with possibly the iliac lymph glands in some cases, should guard against recurrence with reasonable security.

It is interesting to note that Professor Jacobs, of Brussels, one of the earliest advocates of vaginal hysterectomy for cancer of the uterus, has entirely changed his views, and now only does the vaginal operation when the abdominal route is impracticable. Jacobs states that he never has had a case of uterine cancer operated

upon by the vaginal route to live more than three years, and that the majority of them were dead at the end of one year. In contrast to this he has a number of cases upon which he operated by the abdominal route that are living and well after four years. Jacobs practices the removal of the pelvic glands.

Prof. von Rosthron, of Heidelberg, also practices cleaning out of the glands of the pelvis in carcinoma of the uterus; in fact, this is the common practice at the present time on the continent. It would seem as reasonable to remove the glands of the pelvis in connection with removal of the uterus in early carcinoma as it does to remove the glands of the armpit in early operation for the removal of cancer of the mammary gland. It scarcely seems necessary to say that this is a useless procedure where there is already systemic involvement. The Halsted operation for carcinoma of the mammary gland, as practiced by the writer, is only done in the early cases. I believe it is useless to make so extensive a dissection after there is advanced involvement of the axillary, subclavian, and supraclavicular glands. When the latter condition is present it is evident that the disease has advanced beyond the reach of the surgeon's knife, particularly in the shape of involvement of the intrathoracic glands.

I strongly oppose vaginal hysterectomy in carcinoma of the cervix, except in the presence of obstacles necessitating such a course—for instance, a very stout abdomen, nephritis, etc. Early carcinoma of the fundus of the uterus is the condition in which I practice vaginal hysterectomy, and not in the cases where sufficient time has elapsed to have allowed the lymphatics of the cervix uteri to become involved.

The vaginal operation in carcinoma of the cervix offers no advantages over abdominal section when the latter is properly performed, and suffers from the charge of being an incomplete procedure, dangerous to the ureters, and liable at any time to be followed by secondary bleeding. The abdominal operation certainly gives the only chance for the proper cleaning of the pelvis, offers greater security against hemorrhage, and with less risk of injuring the ureters; the field of operation is kept constantly in view, the patient in the Trendelenburg position, and the intestines kept out of the way of injury and infection by the proper placing of gauze pads. That we can cut farther away from the diseased area in the abdominal than in the vaginal operation we must admit.

In the abdominal operation I never have any feeling of injuring the ureters if the bladder with the anterior serous flap is carried well forward and upward behind the pubic bone. If the operator is not content with this it is a simple matter to expose the ureters. The question of the introduction of ureteral catheters or bougies to safeguard the ureters has not been my practice. I have always feared more the consequences of carrying an instrument from the bladder into the ureters and exposing the kidneys and ureters to the danger of infection than I have injury to the ducts.

It will not be understood that I am an advocate of dissection of the lymphatic glands of the pelvis in all cases of carcinoma, for I am not by any means. I do believe, however, that in certain selected cases this operation is not only feasible, but in order. In this connection I would furthermore like to say that the dissection of the pelvis should be done as readily, the conditions requiring it, as a deep dissection of the neck; the same amount of care in exposing the lesion and the structures in relation therewith, thus avoiding unnecessary mutilation, should be carried out in the same anatomical manner as in the dissection for the removal of an enlarged thyroid gland. This being done, fewer ureters will be injured, fewer cases of secondary hemorrhage, of postoperative vesical fistula, intestinal fistula, etc., will have to be noted. The individual ligation of vessels of any size as opposed to the mass ligature or the use of that abominable instrument, the angiotribe, be it the plain or electrical hemostatic instrument, I strongly urge.

In connection with the discussion of the propriety of the removal of the pelvic lymph glands, it is interesting to note that the lymphatic system of the uterus is composed of a rich network of vessels, those from the vagina and lower portion of the cervix following the uterine vessels to glands at the bifurcation of the common iliac arteries, usually three in number, whence they pass upward. The lymphatics of the body of the uterus anastomose with those of the cervix uteri

travel downward to the deep inguinal glands by way of the round ligaments, and pass through the utero-ovarian ligaments, emptying into the lumbar glands. Notwithstanding these abundant lymphatics, carcinoma of the uterus spreads more rapidly by continuity of tissue than through lymphatic metastasis; therefore the argument in favor of removal of the pelvic glands is weakened. Certainly the only cases that promise anything are those where the glands have not yet become involved. Our experience teaches us that extension of the cancer downward into the vagina and backward into the rectum is much more common than metastasis into the pelvic glands.

Epithelioma of the vagina has been overlooked as a point of metastasis or implantation, the diseased area, believed to have occurred in preparation for operation, resembling so much an excoriation, and has been mistaken for such. Early involvement of the bladder may be recognized only by means of a cystoscopic examination.

The technique of the abdominal operation is comparatively simple. The abdomen is opened through the right rectus muscle, the contents of the pelvic cavity palpated to determine the presence of adhesions, and if the disease has extended beyond the uterus the patient is placed in the Trendelenburg position; the intestines and great omentum are protected by gauze pads carefully placed. With the gauze pads properly placed the field of operation in the pelvic cavity is well exposed. Traction is now made upon the fundus of the uterus, drawing it upward and backward, when an incision is carried from the pelvic end of one round ligament to that of the other, and through the serous covering of the anterior surface of the uterus at the point of reflexion of the peritoneum from the uterus on to the bladder. This serous flap is displaced downward carrying the bladder with it; the dissection is carried as far down as possible, in this wise displacing the bladder upward behind the pelvic bone, thus exposing the anterior wall of the vagina and carrying the ureters out of harm's way. The next step in the operation is tying off the ovarian arteries to the outer or inner side of the ovary or ovaries, depending upon the advisability of removing or leaving them. It is the practice of the writer to leave the ovaries in cases of carcinoma occurring in early life. To retain the ovaries when possible I regard as highly important; nothing can add more to the future comfort of the patient. the premature menopause being a most distressing condition. The disturbance of the nervous system occasioned by the removal of organs, the internal secretion of which is of so much value to the well-being of the individual, is acknowledged. The uterine arteries and veins are next exposed as they pass from the side of the pelvis to the cervix uteri and tied between two ligatures and divided; in making the dissection to expose these vessels the ureters are exposed, and thus rendered less liable to injury.

The next step in the operation is cutting the cervix out of the vagina with the removal of the organ. The vaginal walls are now whipped over with a continuous catgut suture, a piece of iodoform gauze placed in the vagina, allowing a small portion of it to protrude into the pelvis, when the anterior serous flap is brought over the protruding gauze and stitched to the posterior surface of the vaginal wall or the serous covering of the sigmoid flexure, as the case may be. The gauze pads removed, the intestines and great omentum are placed in normal position; the abdominal walls are closed with tier suture, the abdominal wound dressed, and an aseptic dressing applied to the vulva and the patient returned to bed. The head of the bed is elevated, unless there are symptoms of temporary shock, when this is not done until the patient has recovered from shock.

In making a vaginal hysterectomy I prefer to use clamps rather than ligatures.

THE USE OF ATROPINE IN OPHTHALMIC PRACTICE.

By Aaron Brav, M.D.,
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It was in 1833 that Geiger Mein and Hess announced that the action of belladonna on the pupil and accommodation is due to an alkaloid which they named atropinum. Atropine is the alkaloid of *Atropa Belladonna,* a member of the family Solanaceæ. It is a yellowish-white, silky, prismatic crystal without smell, having a

bitter, acrid taste. It is soluble in 300 parts of water at 60° F., in 25 parts of ether, and in much less alcohol. It is alkaline in reaction and forms crystallizable salts with acid. The salts of atropine are easily soluble in water, and are therefore suitable for ophthalmic use. The sulphate of atropine is the one more commonly employed. This salt is a white crystalline powder, very soluble in water and alcohol. It is used in ophthalmic practice as a (1) mydriatic, (2) antiphogistic, (3) analgesic, (4) iridoplegic, and (5) cycloplegic.

When a drop of a half-per-cent solution of atropine is instilled into the conjunctival sac its physiological effect will show itself within twenty minutes by a dilatation of the pupil. This effect results from its action upon the terminal endings of the oculomotor nerve. It paralyzes the peripheral filaments of the motor nerves, and according to Donders it has also a stimulating effect upon the sympathetic nerve fibers. The action of atropine is entirely a local one and produces its effect without interference with the center of innervation. That the action of atropine is a local one is proven by the fact that the instillation in one eye will not produce a dilatation of the pupil in the other eye. The action of atropine takes place from its passing through the cornea by diffusion, and getting into the aqueous humor so as to act directly upon the iris. Experimentally this can be demonstrated by instilling a drop of atropine into an eye, and as soon as dilatation occurs the aqueous is evacuated by paracentesis; this aqueous is then instilled into another eye, and dilatation of the pupil is the result, showing that the diffusion takes place through the aqueous and acts directly upon the terminal nerves of the iris.

The quantity and strength of the solution of atropine used depend upon the condition met with. Ordinarily for mydriatic purposes one drop of a half-per-cent solution of the sulphate or salicylate is sufficient. When the iris is congested a one-per-cent solution is employed. To keep the eye in a state of mydriasis, where it is necessary to preserve its mydriatic effect for many days, two or three instillations give the desired result.

The use of atropine as a mydriatic is indicated in all conditions where the iris is congested, and in conditions where adhesions of the iris to the anterior part of the capsule of the lens are anticipated; for diagnostic purposes, in diagnosing posterior synechia resulting from iritis, or in recognizing a seclusio pupillæ, and in differentiating iritis from cyclitis, atropine is of great value. However, in ordinary ophthalmoscopic examinations of the eye, atropine, unless there is some special indication for its use, should not be employed because of the unnecessary visual disturbance of considerable duration to which it subjects the patient.

The antiphlogistic property of atropine makes this drug the most valuable in ophthalmic practice, and is indicated in every inflammatory condition of the eye, except in a few cases which will be discussed later. Its antiphlogistic power depends upon the fact that it relieves the congestion of the iris by forcing the blood out of its vessels into the ciliary vessels, and thus it exerts a beneficial influence on the inflammatory condition. Again, by contracting the iris and paralyzing its motor function, it places the iris in a state of absolute rest, by preventing its to-and-fro movements in response to the stimulus of light, and rest is the most essential thing in all inflammatory conditions. Its antiphlogistic property depends therefore upon its physiological action as a mydriatic and cycloplegic. All inflammatory conditions of the eye accompanied by congestion of the iris are direct indications for the therapeutic value of its antiphlogistic principle.

Atropine also acts as an analgesic, diminishing pain and sometimes completely abolishing it. This it accomplishes not by its direct action on the sensory nerves, but rather indirectly by reducing the hyperemia and by paralyzing the motor filaments, preventing movement of the iris. It has no anesthetic value. As an analgesic its value is only of usefulness in those cases in which the pain is due to the congestion of the iris.

Total paralysis of accommodation is the cycloplegic effect of atropine. Paralysis of the ciliary muscles is accomplished by the action of atropine upon the peripheral nerves, and is more slow than its mydriatic action, requiring about two hours to bring the ciliary muscles into a state of absolute rest. The effect begins to diminish about the fourth day, and is completely lost in about twelve days. It is necessary

to instil two or three drops daily in cases where its cycloplegic effect is required for a few days.

Atropine is extensively used for its cycloplegic effect. In the estimation of errors of refraction in determination of hypermetropia, astigmatism, simple or compound, atropine is of the utmost importance. In deep-seated diseases of the choroid and retinæ atropine is of great service, because it sets the ciliary muscles at rest so that they cease to drag upon choroidal and retinal membranes.

Visual disturbances as a result of the local use of atropine differ greatly and depend entirely upon the refractive media of the eye. When the accommodation has been paralyzed by the use of atropine the ciliary muscles are not able to perform their functions; the eye is then constantly focused for its farthest point. The emmetrope retains distant vision, but must use a lens with a refractive power equal to the paralyzed accommodation in fixing near objects. In low degrees of myopia the visual disturbance is more marked, while in high degrees of myopia the visual disturbance is but slightly noticeable. Most marked is the effect in hypermetropic and astigmatic eyes, since this class of patients cannot see distinctly without using their power of accommodation, so that distant vision becomes indistinct without a proper lens substituted for the paralyzed accommodation.

The effect of atropine upon intra-ocular pressure is still a subject open for dispute and investigation. Various leading therapeutic writers claim that it diminishes intra-ocular tension, while the tendency in ophthalmological circles is to regard atropine as a drug that increases intra-ocular tension. This difference of opinion may depend entirely upon the fact that the physiological action of the alkaloid has been determined by experimenting upon healthy eyes in which diminution of intra-ocular pressure was noticed, while the ophthalmologists gather their information from clinical observation, and it is highly probable that in eyes having already a high tension, atropine increases it. In speaking of intra-ocular tension Fuchs says: "So far observers have not arrived at concordant results in regard to this matter, but at least this much has been proved by experiments, that in the healthy eye that alkaloid causes only very insignificant variations of tension. The case is altogether different when elevation of tension exists, or there is a tendency to it; then atropine may raise the tension very considerably, while eserine and pilocarpine noticeably diminish it."

INDICATIONS FOR THE USE OF ATROPINE.

1. In correcting errors of refraction in patients under forty years, unless there is a contraindication to its use, such as pregnancy, lactation, or a glaucomatous condition, atropine is a useful agent. Various other drugs are employed in testing and measuring refractive errors, but none so effective and productive of good results as atropine. Homatropine is preferred by some because it does not incapacitate the patient for such a long time, but while it is reliable in ordinary cases its use in complicated cases is positively of no avail. In all cases of high degree of hypermetropia, cases accompanied by severe headache or other symptoms resulting from errors of refraction, in cases of astigmatism, simple or compound, hyperopic or myopic, atropine is the most reliable cycloplegic.

2. In spasms of accommodation with a resulting apparent myopia atropine is the drug to employ to clear up the condition. I remember distinctly a case that came under our observation in the eye department of the Medico-Chirurgical College, which had an apparent myopia of —.75; under homatropine it showed a myopia of —.25, while under the influence of atropine a +1.25 hypermetropia was revealed.

3. In the treatment of convergent strabismus, due to an excessive degree of hypermetropia in its early state, atropine is of value, because paralyzing the accommodation, keeping the eye focused for distant vision, it prevents undue convergence.

4. In diagnosing posterior synechia and seclusio pupilla atropine is of considerable value.

5. In various inflammatory conditions because of its many-sided effects it is the most valuable therapeutic agent employed in ophthalmic practice. In keratitis, whenever there is a complicated iritis or hyperemia of the iris added to the corneal inflammation, atropine is indicated. It is a remedy of great utility. It exerts its antiphlogistic effect by contracting the blood-vessels, thus relieving the congestion. For the same reason it also exerts

its anodyne effect, so that with the dilatation of the pupil the pain simultaneously diminishes. Some observers are of the opinion that atropine has a direct sedative action upon corneal lesions, because of the favorable results obtained from its use. It is, however, reasonable to assume that this favorable result is obtained indirectly through its antiphlogistic and analgesic effect. Some there are who believe atropine to be contraindicated in superficial inflammations of the cornea because its mydriatic effect augments the photophobia by admitting more light through the dilated pupil. While theoretically this may be true, yet when we consider and carefully estimate the antiphlogistic and analgesic effect of the alkaloid the balance will be in favor of its employment, especially so when we can by smoked glasses exclude the light. In diseases of the cornea, therefore, of almost every type, from the most superficial defect in the epithelium to the most severe form of suppurative keratitis, atropine is indicated, and is specially of great service in the interstitial and parenchymatous types of the disease.

6. In ulcers of the cornea atropine is of invaluable service. Its important therapeutic value is in keeping the iris away from the cornea, thus guarding against hernia of the iris and its manifold baneful results, in addition to its antiphlogistic and analgesic effect. The objection to the use of atropine in deep ulcers involving the stroma of the cornea is that it raises intra-ocular tension, thus compressing the channels of the corneal tissue, depriving the cornea of its nourishment, and thereby exposing its tissues to further degeneration. Again, in deep ulcers an increase in intra-ocular tension is likely to cause perforation. From the information gathered the increase of intra-ocular pressure is so slight as to be overlooked when we consider the sedative effect of the drug. Atropine is undoubtedly one of the most valuable drugs the ophthalmologist has at his disposal.

7. In the treatment of diseases of the iris and ciliary body atropine is an absolute necessity. It should be used freely and early, until the iris becomes fixed and quiet, and its tissue is freed from both serum and blood. In iritis regardless of its causal factors—syphilitic, rheumatic, or traumatic—atropine is indicated. Iritic pain is relieved by reducing the congestion and by placing the iris at rest through the mydriatic and cycloplegic action of the alkaloid. Its mydriatic action also prevents the formation of adhesions (posterior synechia) when used early. In cyclitis the pain is increased by the use of atropine because of an overengorgement of the ciliary vessels, which while already congested are forced to receive the blood from the contracting vessels of the iris.

8. Diseases of the sclera, wounds, and recent injuries are always benefited by the employment of atropine.

9. Diseases of the uveal tract, choroiditis, retinitis, are also indications for its use, because paralyzing the ciliary muscles it prevents the constant pulling of these members forward.

10. Atropine is also indicated in circular iridodialysis.

CONDITIONS IN WHICH ATROPINE IS CONTRAINDICATED.

1. Glaucoma: in all conditions with an increase of intra-ocular tension, in all cases with a tendency to glaucoma, atropine should be avoided, as it may precipitate an acute glaucoma.

2. In people above forty, atropine for the correction of errors of refraction should not be used.

3. In cyclitis atropine will increase the pain and should not be used.

4. In ulcers of the cornea with impending perforation atropine should be used with the utmost care.

5. In radial iridodialysis atropine is contraindicated.

In the employment of atropine, especially so in children, great care and caution must be exercised. Atropine when used carelessly will cause general disturbances by a manifestation of toxic symptoms. Some people show a marked intolerance to atropine and manifest toxic symptoms after the instillation of a few drops. The toxic effect manifests itself by dryness of the throat, flushing of the face, nausea, accelerated pulse, redness and swelling of the lids. As a rule, however, these symptoms occur only in cases where the drug has been employed for a long time.

It is essential to take proper precautions in the use of atropine. The poisonous effect from the local use of atropine takes place by its passing through the puncta,

canaliculi, lacrimal sac, nasal duct, to the mucous membrane of the nose, from where it is absorbed. Hence to preclude the development of atropine poisoning we have to prevent its running down along with the tears through the nasal canal. To do this it is well to evert the lid while atropine is instilled, so as to allow any excessive quantity to run down the cheek. This is especially necessary in children. The same result can be obtained by compressing the lacrimal sac with the finger.

While using atropine the following points should be borne in mind:

1. The preparation should not be contaminated.
2. The solution should be neutral in reaction.
3. The preparation should not be too strong.
4. While using it the lacrimal sac should be compressed or the lid everted.
5. The solution should be asepticized by a fraction of bichloride, especially when used in inflammatory conditions.
6. The diagnosis must be certain.
7. The eye should not be glaucomatous.
8. No more than three drops daily should be instilled. In children one drop will suffice.
9. It should not be used after forty-five years of age.

With these precautions in mind we can safely say that atropine is the most valuable therapeutic agent in the domain of ophthalmic therapy.

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MEDICAL TREATMENT OF DIABETES.

In the course of an article in *American Medicine* of February 20, 1904, THOMSON tells us that alkalies, in the form of mineral waters, have always held a deserved place in the treatment of diabetes. There is, however, one caution to be always borne in mind, and that is, that the free use of all saline waters should not be ordered for any one who is really losing flesh. In the writer's experience they have done harm to emaciated diabetics.

Diabetes is a very serious disease on one account alone, if not on other accounts, in that it virtually compels a starvation of an essential element of food. The system must have sugar, and if it does not get the sugar which it can use in the food, it will turn to its own proteid for sugar. Along with this profound perversion, poisons begin to be generated, of which oxybutyric acid and its derivatives are doubtless only a part, and which poisoning we are practically unable to neutralize. Our function, therefore, is to put off the evil day of these terminal developments as long as possible, and to do that functional medicines will afford us no help. The essentials of the chemistry of this specific toxemia are yet unknown. The formation of acetone and of diacetic acid occurs early, and the blood itself often changes its color, owing to the abundant presence in it of fatty and proteid granules. Something, however, holds back the carbon dioxide in the tissues, for it is a mistake to ascribe the low percentage of carbonic acid in the blood to hyperacidity, because the blood of those patients when drawn will take up oxygen or carbonic acid about as freely as normal blood.

The last step is the rapid disappearance of sugar from the urine. Why sugar is absent in diabetic coma we do not know, but curiously enough the first danger-signal comes from the kidneys, for before drowsiness begins the urine often deposits an enormous number of peculiar looking casts. To postpone the well-nigh inevitable death in these conditions we can rely upon the most trustworthy diuretic which we possess, namely, prolonged intestinal irrigation with hot normal saline solution, by means of what is conceded to be the best instrument for the purpose, Kemp's rectal irrigator. Hypodermic injections of 7 to 14 grains of camphor in sterilized almond or olive oil answer best to sustain the failing heart, while diluted milk holding all the sodium bicarbonate which the patient can take is the only recourse left for food. Some of the fatal poison doubtless could be washed out, if we could bleed the patient freely and transfuse an equivalent amount of normal saline.

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Leading Articles.

THE TREATMENT OF CROUPOUS PNEUMONIA.

Until some true specific for the treatment of this grave disease is discovered, the profession will never cease to take interest in plans which may be proposed for the alleviation or cure of the malady. Even after a true specific is found a considerable number of patients will die of this disease, because it is often a manifestation of diminished vital resistance depending upon some underlying malady such as Bright's disease or diabetes. Most of the laity, and some physicians, fail to recognize the fact that a disease like pneumonia is in reality a terminal infection which only develops when for some reason vital resistance has become impaired. This is one of the reasons why the malady has so high a mortality, and explains, to some extent, our inability to save certain patients when attacked by it.

There is considerable difference of opinion amongst leaders of medical thought at the present time as to the methods of treatment which should generally be resorted to, but whatever these may be, every one is in accord in believing that the old methods of employing depressing drugs should be entirely cast aside, and that in their place our constant endeavor should be to maintain the nutrition and strength of the patient in order that his vital resistance may be supported to such an extent that he will triumph over the invading microörganisms. To this end small quantities of easily digested or predigested foods should be given at short intervals, and when there are evidences of circulatory failure, stimulants may be administered. It is, however, of vital importance in our anxiety to do good that we do not in reality do harm, and as has recently been emphasized by Dr. Gilman Thompson, the physician frequently makes the mistake of tiring the patient's heart through excessive stimulation. In other words, physicians of the present day have been taught for the last thirty years that one of the chief dangers in pneumonia is circulatory failure, and so they are wont to direct all their energies toward circulatory stimulation, with the result that too much stimulant treatment is given. Indeed, it is sometimes surprising to see how much "treatment" a pneumonia patient can stand. A physician treating a case of this character should, we think, always remember that a full, bounding circulation is not advantageous, and on the other hand, that a moderately weak circulation, if adequate for the patient's needs, may be by no means a cause of alarm. Too frequently the physician gives stimulant drugs when they are not required, and oftentimes he will be surprised to find that the patient's pulse under the influence of the stimulants which he has administered is stronger than his own. Overstimulation is not only a mistake, but it is capable of doing harm, both by causing the heart to exhaust itself through overexertion, and by giving the stomach and liver the extra work of absorption, and the kidneys the extra duty of elimination. It is well to remember that variance from the normal, either above or below what might be called the abscissa line of health, may be equally disastrous. If the pulse is feeble and the heart is weak, it is wise to give stimulants for the purpose of supporting the circula-

tion to the extent that it is raised to approximately its normal level, but on the other hand it is a great mistake to carry the circulation to a point above the normal level, or to give stimulants when the circulation is already excited.

In the paper of Dr. Thompson which we have quoted, and which is published in the *Journal of the American Medical Association* of March 19, 1904, we are glad to notice that he casts the weight of his opinion in favor of certain plans of treatment which we have learned by experience to consider of value. In the first place, he recognizes that different conditions call for different remedies; that strychnine may be needed for certain circulatory depression; that nitroglycerin should be combined with digitalis, if the peripheral vessels are in spasm; and that for sudden collapse, hypodermic injections of camphor, ether, or alcohol are exceedingly valuable. Of the so-called "specific remedies" he has little to say that is good, and he confirms the unfavorable views expressed by Dr. Scott in a recent number of the GAZETTE as to the efficiency of the carbonate of creosote. Alcohol, he thinks, is not a very reliable crutch to lean upon, but oxygen he regards as a very valuable aid in carrying the patient through periods of dyspnea. Concerning hypodermoclysis, he is an earnest advocate, particularly when the respiration is shallow, intermittent, and irregular, the cyanosis is extreme, and the pulse is almost imperceptible, and when there is coma with profound asthenia. To meet these conditions he advises from 600 to 1000 cubic centimeters of hot normal saline solution. Concerning the value of local applications on the chest he has come to the conclusion that they exercise no influence whatever upon the course or outcome of the disease. With this view we are in accord. Strapping the chest, if there is any pleural inflammation, is of course an excellent method of diminishing the pain. Dr. Thompson also believes, as we do, that great care should be taken to prevent the accumulation of gas in the intestines, since tympanites increases the burden of the heart and of the lungs.

Recently we have employed in a number of cases antipneumococcic serum with excellent results, but we doubt whether this serum will ever give the same proportion of recoveries as that which follows the use of antitoxin in diphtheria. The conditions in the two diseases are quite different. Diphtheria, as a rule, attacks young children whose systems have not been impaired by bad habits or by disease, and who are therefore able to rapidly convalesce if the antitoxin can bridge the chasm between illness and health; whereas in pneumonia, as we have already stated, the disease in a large proportion of cases attacks persons already enfeebled by other ailments, and therefore antitoxin has not the same opportunities for doing good. When given early in the disease to an individual not already suffering from some chronic ailment, we can see no reason why antipneumococcic serum should not promise much in the way of aiding his recovery.

THE USE OF OPIUM IN PNEUMONIA.

We publish elsewhere, in the columns devoted to Progress an abstract from an editorial article upon this subject which appeared in the London *Lancet* of February 20, 1904. We are desirous of calling attention to this subject because, while on the one hand we can fully indorse some of the opinions expressed in that article, it has seemed to us that its writer has gone to the other extreme, and is perhaps preventing the administration of a drug which in some conditions undoubtedly exercises a most favorable influence. In the first place it is important that we should bear in mind the fact that there is more than one form of pneumonia, and also that pneumonia in each of its forms presents quite a different aspect according to the condition of the patient who is ill. There can be no doubt that in those cases of pulmonary consolidation in which there is in addition profuse bronchial secretion, the use of opium or morphine is distinctly disadvantageous, as it aids the carbon dioxide in stupefying the respiratory centers and the mind of the patient, so that inadequate efforts are made to expectorate the mucus which accumulates in the respiratory passages. Cough, in cases such as these, however annoying it may be, is nevertheless a necessary evil in order that the patient may not drown in his own secretions. In any case, therefore, in which these conditions exist, opiates are manifestly harmful. On

the other hand, we not infrequently meet with cases of pneumonia, and typhoid fever as well, in which an active delirium keeps the patient continually wakeful and restless, so that he exhausts his nervous and cardiac strength by repeated struggles and constant talkative delirium. After this has continued for twenty-four hours or more, the end not rarely comes suddenly, partly from toxemia, but largely from exhaustion. It is in such cases that morphine given hypodermically sometimes saves life, and we have frequently seen its administration so alter the character of the case after a few hours of quiet sleep that the patient was manifestly on the road to recovery. Like many other therapeutic recommendations, we cannot therefore advise the use of opiates in pneumonia in general, for certain conditions may exist which will absolutely contraindicate its employment. But on the other hand we can in some instances employ them with most advantageous results, and the skill of the physician must be employed to decide when they will do harm and when they will do good. It is wrong to say "Use opium always," and it is equally wrong to say "Use opium never."

THE ABUSE OF NITROGLYCERIN AND STRYCHNINE.

On more than one occasion in the past we have called attention to what we believe to be an abuse of nitroglycerin; that is, its employment as if it were a true circulatory stimulant. Not rarely it is administered in cases of sudden cardiac failure and during the course of exhausting diseases with the idea that by so doing a stimulant influence upon the circulation is produced. Such an employment of this drug cannot be based upon clinical experience, and certainly is antagonistic to our knowledge of its physiological action. The only condition of cardiac failure in which nitroglycerin can be of value is when the heart is tired out because of the existence of a high arterial tension which gives it an excessive amount of work to do. We are glad to notice that in an article contributed to a recent number of the *Medical News* by Dr. Le Fevre, and part of which we abstract for this issue of the GAZETTE, he emphasizes the fact that this mistake is frequently made. He asserts that the drug is abused in the treatment of typhoid fever, and that it should only be given when arterial tension is relatively too high for the cardiac power. Finally, he believes that it should not be given continuously for any length of time in typhoid fever. With these conclusions our readers already know that we are in thorough accord.

Another point which Dr. Le Fevre mentions, and concerning which we have not infrequently spoken in these columns, is the abuse of strychnine. We are glad to notice that his experience has been in accord with our own, and that he strongly dissents from the present plan of giving strychnine in heroic doses as soon as typhoid fever is diagnosed. He believes that in these cases much of the restlessness and distress, supposed to be due to the disease, is actually caused by medication, and he asserts that patients who are early stimulated to the full physiological limit by strychnine make a slower convalescence than those who do not receive the drug.

Finally, the point is made that this drug should be reserved until a condition of the reflexes, both cardiac and spinal, shows that the disease has begun to affect the nervous centers, and under these circumstances it may be merely given for short periods of time to overcome conditions of depression.

Some years ago in the editorial columns of the GAZETTE we spoke of this matter in full, and since then we have had our opinion in regard to it confirmed again and again. Not infrequently we have seen a rapid, irritable pulse produced in cases of typhoid fever by the unwise employment of full doses of strychnine.

A FAR CRY FOR ADRENALIN CHLORIDE.

To the THERAPEUTIC GAZETTE has come the first issue of the *Calcutta Practitioner,* a medical journal published in Calcutta, India, which presents as its opening article one which deals with the use of adrenalin chloride in plague and other diseases, by Rai Bahadur Kailaschandra Bose. This clinician believes that adrenalin chloride is a very useful remedy in bubonic plague, as in his experience death is due in many instances to cardiac failure and interstitial hemorrhage. For the purpose of supporting the circulation, he is accustomed to administer strychnine, dig-

italis, and arsenic. A year ago he first added to this treatment adrenalin chloride. At first he only used a single drop of the 1:1000 solution every hour, but later he increased it to two drops every hour, with the result that the patient improved, and finally recovered. Basing his plan of treatment upon this original case, he then treated sixty other cases, with the result that he had a percentage of recovery of 54.2, which while exceedingly low for most diseases is high for plague. He found that given in any stage of the disease it sufficed to maintain the heart and pulse admirably, and seemed also to reduce the temperature. He has also found adrenalin of value for the purpose of reducing enlargement of the spleen due to engorgement in malarial fever. He does not think that it improves the general health, but is confident that it decreases the size of the spleen.

DIVERTICULA OF THE ESOPHAGUS.

By diverticulum of the esophagus is meant a sacculation of the wall of this tube, lined by a practically normal mucous membrane. Such pouching may occur in any part of the esophagus, and may be due either to tractions from the outside or pressure from within. In the former case the traction is exerted by contracting scar tissue, such, for instance, as would result from the healing processes following the inflammatory destruction of the bronchial glands. It is probable that most diverticula, at least those of distinct clinical significance, are due to a combination of causes, having been started perhaps by traction, and subsequently developed as the result of internal pressure.

The purely traction diverticula scarcely ever give trouble, except from the lodgment of a foreign body, perforation, and infection of the mediastinum. Their presence is rarely diagnosed, and the knowledge of their existence is dependent on the autopsy findings. When these traction diverticula are so placed that they become distended by ingesta, they become converted into pressure diverticula, and are then of great clinical significance.

The symptoms of pressure diverticula are sufficiently pronounced to enable the surgeon to recognize their presence. The most characteristic symptoms are difficulty or delay in swallowing food, regurgitation of the same at varying periods, dyspnea, pain, and often cough. Death ultimately results from inanition. Halstead (*Annals of Surgery*, February, 1904), in his admirable paper on this subject, notes that of the twenty-seven cases reported by Zenker, thirteen died from starvation, and eight from intercurrent disease superinduced by the diverticulum. Halstead notes that congenital diverticula are observed in the pharynx, but are probably the remains of bronchial clefts, the starting-point being an incomplete internal fistula that has gradually dilated through pressure, and has assumed the characteristic shape of a diverticulum.

The pharyngeal diverticula are so placed in the lateral wall that while they are characterized by symptoms similar to those dependent on esophageal diverticula, and although the dysphagia is generally not marked, yet the cough and dyspnea are prominent symptoms from the contents of the sac escaping into the air-passages, and from pressure upon the larynx.

The pharyngoesophageal diverticula are, according to Halstead, commonest, and from a clinical standpoint the most important. They develop exclusively in the median line posteriorly, though by pressure they may be pushed to the side. Their point of origin corresponds to the triangular space just below the inferior constrictor, where there is normally a defect of the muscular wall of the esophagus. Also at this point the esophagus is narrowest and is fixed in front.

Diverticula situated between the pharyngoesophageal junction and the upper border of the sternum are rare. At the level of the left bronchus there occasionally occur diverticula, probably incident to a bulging of the anterior esophageal wall which takes place at this point.

Diverticula of the lower third of the esophagus are situated, as a rule, just above the diaphragm, and are given off generally from the lateral or anterior wall of the esophagus.

The symptoms of all forms of pressure diverticula are so like those of stenosis that a differential diagnosis may be difficult. The early symptoms are always those of a slight stenosis, and those sacs which are placed in the upper end of the esophagus form tumors which can be palpated and emptied by pressure.

When the diagnosis is to be cleared by

the skiagraph, the sac should be filled with bismuth mixture, or there should be introduced into it a metallic sound or rubber tube filled with shot. In an attempt to pass a small sound it often happens that it meets with an obstruction which seems absolute, but on change of position of the patient or of the sound the latter will pass readily into the stomach. On occasions a large sound may be introduced without trouble. When the smaller one catches, the contact is most unlike that of a stricture.

The employment of two tubes is found serviceable. One with numerous perforations in its lower end is passed directly into the stomach; the other, with but a single opening at the end, into the esophagus above the cardia. Water, if poured through the second tube, will run down into the stomach through the openings in the first in case of esophageal dilatation. If a diverticulum exists, it will first be filled, before the overflow will reach the stomach. Moreover, the contents of the diverticulum can be returned by the second tube and measured. Jung's method consists in introducing a third smaller tube, with only two perforations at the end, through the first or stomach tube. Thus he can aspirate the fluid from the stomach, giving positive information as to the position of the tube. By allowing clear water to pass into the stomach through the first tube, and a colored solution through the second, and by having the water returned unmixed from the inner or third tube, a positive diagnosis of diverticulum can be made, and dilatation of the esophagus with or without cardia spasms can be excluded.

Palliative treatment of esophageal diverticulum consists in a persistent use of sounds and stomach tubes. The palliative operation of gastrostomy is indicated when it is needful to prevent death from starvation. Excision of the sac is the operative treatment when this is practicable. Halstead quotes Veiel's statistics of 1900, of twenty-three cases operated on; five died, and eighteen recovered. Nearly all operations for the relief of diverticulum are practiced in the cervical region. A lateral incision is made, and is deepened until the esophagus is reached. The sac is freed from the structures adherent to it, and is either inverted into the esophagus in case it be small, or is closed by suture.

Halstead states that the most satisfactory result from suturing is obtained by first passing round the neck of the sac a purse-string suture; distal to this the neck of the sac is temporarily ligated. The sac is then cut away beyond the ligature. The stump is invaginated, and the purse-string suture is tied. Finally the neck of the sac is sutured with catgut, using the Lembert suture, and the defects in the muscular wall of the esophagus are closed by silk suture. A partial closure of the esophagus and the introduction of a stomach tube is strongly discountenanced. At times operators succeed in obtaining primary union of the entire operative wound. In some cases a preliminary gastrostomy has been performed in order to nourish the patient during the course of the healing of the wound.

PENETRATING WOUNDS OF THE ABDOMEN.

In spite of the enormous number of operations performed for the stoppage of hemorrahge and the prevention of peritonitis incident to penetrating wounds of the abdomen, implying as this does prompt intervention on the part of those trained in such abdominal work, there still remains a popular impression, and in the main one well founded, to the effect that when the viscera are opened a fatal result may be expected in the majority of cases. Though a study of current literature might seem to negative this impression, it must be remembered that as a rule only successful individual cases are reported. Therefore in determining what measure of success may be fairly expected at the present day the entire experience of one man is extremely important. This is given by Harris (*Medical News,* Jan. 23, 1904), who reports sixteen cases, with three deaths. One case died from rapid, profuse internal hemorrhage before the source of the bleeding could be discovered and controlled. This might reasonably be excluded as an operative death, as might also the second case, in which fatal termination was due to shock, both lungs and the spinal cord having been injured. These aside, there remain fourteen cases with but one death. This latter was due to peritonitis, and occurred on the third day, the patient having exhibited eight perforations involving the sigmoid and small intestine and transverse colon.

In two of the cases celiotomy showed neither visceral injury nor extensive hemorrhage, hence operation, except for diagnostic purposes, was not needful. In one case, however, the viscera were not injured, but the hemorrhage was profuse, and a fatal termination could reasonably be expected had this not been checked.

Of the eleven remaining cases, characterized by perforation and hemorrhage, the mortality was ten per cent, as contrasted with the sixty or seventy per cent which is usually considered as allowable. This low mortality is attributed by Harris to immediate operation in all cases but one, and to drainage when the gastrointestinal tract had been opened.

The surgeon who waits for symptoms of peritonitis before making a diagnosis of penetrating wound involving the viscera can always expect a large mortality. If, however, it be recognized that there are absolutely no known symptoms which will indicate injury to any of the viscera, except possibly in connection with the urinary tract, stomach, or lower bowel, that all symptoms following such wounds indicate either internal hemorrhage or peritonitis, and that every bullet or stab wound which penetrates the abdominal cavity should be operated upon at the earliest possible moment, any careful and clean surgeon can expect a mortality as low as that reported by Harris.

In regard to the advisability of drainage, strongly insisted upon by Harris, there is a diversity of opinion. His judgment, however, based upon his most successful experience, should carry much weight.

Reports on Therapeutic Progress

THE ADMINISTRATION OF OPIUM IN PNEUMONIA.

The London *Lancet* of February 20, 1904, speaks of this subject as follows in an editorial article:

When pneumonia was regarded as an acute inflammatory affection due to cold it was treated vigorously by bleeding and by purgatives, which without doubt relieved pain and diminished arterial tension. On account of the dry burning heat of the skin diaphoretics were sometimes employed, the most important being tartar emetic. Then followed the group of stimulant expectorants to facilitate the removal of the exudation. But it was soon realized that drugs were scarcely required. Indeed, the extravagant claims put forward for homeopathy paved the way for the recognition of a normal definite crisis in pneumonia independently of active interference, and this in turn was a step toward the subsequent discovery of the presence of microörganisms and to the numerous attempts which have been made to utilize this knowledge. For the present most clinical observers are convinced that with our known resources it is impossible to curtail the duration of the fever, which is, indeed, regarded in some quarters as a natural effort to limit and to control the development of microörganisms. Accordingly, while some, on the self-limited systemic infection theory, think there is nothing to be done, others turn more hopefully to symptomatic treatment.

Of late years there have been many indications of uneasiness concerning symptomatic treatment in pneumonia, and more than one observer has declared his conviction that it cannot safely be pursued on ordinary lines. Many maintain that several distressing symptoms are really conservative in their origin, and that any interference with these may be followed by dangerous results. The pyrexia and the dyspnea of pneumonia would under such reasoning be regarded like the diarrhea of typhoid fever as being beneficial within reasonable limits, and therefore to be checked only when they appear to be excessive. In nearly every case of pneumonia, if symptomatic treatment is to be adopted, there are probably numerous temptations to employ opium or morphine. The severity of the pleuritic pain at the outset seems to demand the adoption of measures calculated to afford relief, and since opium is ordinarily the drug which is relied upon for this purpose, it is probably the one to which thoughts will first turn. It is, moreover, the drug which is definitely recommended in many text-books and works of reference. The favorite text-book distinctly advocates the hypodermic injection of morphine for the relief of the stitch in the side at the onset of pneumonia, and further recommends that when the disease is fairly established Dover's powder should be

given to check cough and so to alleviate pain.

Nearly two years ago reference was made to Sir William T. Gairdner's view of the extreme danger of opium in pneumonia. In a paper published in the *Glasgow Medical Journal* for April, 1902, he maintained that the safety of the patient depends upon the respiratory nerve centers being kept, as it were, "wide-awake." His views have recently received confirmation from Dr. Stephen Smith Burt, who discusses the purposes for which opium has frequently been administered in pneumonia and gives his reasons for regarding it as a dangerous drug in this disease. He mentions its employment to relieve pleuritic pain, but for this purpose strongly advocates the local application of an ice-bag, or a hot poultice, or strapping the affected side of the chest, or if these fail he recommends dry-cupping, using a large common tumbler. With regard to the administration of opium to allay cough he pertinently remarks that the average cough of pneumonia with expectoration for obvious reasons should be rather promoted than suppressed. Similarly he contends that when given in this disease to quiet restlessness opium is prejudicial, since under these conditions restlessness is preferable to somnolence. Dr. Burt reminds us that opium, except in doses that are infinitesimal, depresses and finally paralyzes the centers of respiration, and that it checks every secretion save that of the integument. He holds that in pneumonia the existence of the patient depends upon a maintenance of the integrity of the respiratory center, together with the powers of elimination. Sir William Gairdner in the paper above referred to said he had repeatedly seen toxic symptoms from very moderate doses of opium in certain stages of pneumonia, and that, especially toward the crisis, he had learned to dread it more than almost any other drug. In view of this experience it is interesting to note that the fatality mentioned by Dr. Burt resulted from the hypodermic injection of morphine when the patient was apparently on the road to recovery—that is, presumably, just before the crisis. The facts and arguments against the employment of opium at this stage seem so strong that they demand thoughtful revision of the recommendations at present to be found in text-books; greater emphasis should be placed upon the risks incurred, except possibly at the onset of the disease, and greater stress might well be laid upon the amount of relief which is then frequently afforded by the local application of ice or by the abstraction of blood by leeches. The immediate ease which results from the use of morphine for pleuritic pain in pneumonia should not entail disregard of warnings against its employment based on experience and on reason.

THE THERAPY OF HEMOGLOBINURIC FEVER.

"Hemoglobinuric Fever, its Distribution and Etiology," is the title of a pamphlet by Mr. J. Wallace Collett, medical officer, Southern Nigeria. During recent years much light has been thrown upon the etiology of malaria and other tropical diseases, but comparatively little is known concerning the causation of hemoglobinuric or blackwater fever. In this brochure Mr. Collett reminds his readers that at the present time two theories are propounded as to the etiology of this disease, one being that there is a relationship between blackwater fever and malaria, and the other, initiated by Veretas and Tommaselli and revived by Koch, that blackwater fever is nothing more nor less than poisoning by quinine. Mr. Collett gives his reasons for believing that neither of these theories satisfies the demands of science "sufficiently to be placed upon the category of probable facts or even plausible speculations." He considers, however, that there are several occurrences, both clinical and within the pale of bacteriological research, which would appear to encourage the idea that blackwater fever, if not a disease *sui generis*, is at least intimately connected with a class of diseases due to the infection of the system by a poison probably of a protozoal nature.

Mr. Collett then proceeds to make some remarks on the probable nature of the toxin in this disease. He draws attention to the action of hemolysins, and naturally suggests that with a view of discovering the cause of hemoglobinuric fever it becomes necessary to look for a lysin which can produce the symptoms of the disease and which is not found in other

pathological conditions. This is the proper course to pursue when searching for a pathogenic organism as a causal factor in any particular malady. Mr. Collett then refers to the bacillus megatherium, which was first discovered in a fermenting infusion of cooked cabbage leaves and afterward in samples of papain and infusions of hay, grass, and other vegetable matters. This bacillus has been proved to possess distinct hemolytic powers. In alkaline broth, grown at a temperature of 99° F., this property is strongly developed, and it has now been shown to be due mainly to an extra-bacillary elaboration termed distinctively megatheriolysin. Mr. Collett very rightly points out that the occurrence of the bacillus megatherium in decaying vegetable matter is a fact full of significance for West Africa, where vegetation is so rankly luxurious. This organism has generally been considered as non-pathogenic, but it has now been proved to be capable of elaborating products which, in susceptible animals, possess the power of bringing about such profound blood changes as hemoglobinuria. His suggestion, therefore, that there may be a causal relationship between this bacillus and hemoglobinuric fever is a plausible one, but further investigation is, of course, necessary before any definite assertions can be made.—*Lancet*, Dec. 28, 1904.

THE OPEN-AIR TREATMENT OF BRONCHOPNEUMONIA COMPLICATING WHOOPING-COUGH.

In the *Scottish Medical and Surgical Journal* for January, 1904, KER advises this plan of treatment. He thinks after trying that as regards the relative severity of the cases treated there is no doubt at all. Many cases were admitted cyanosed with temperatures of 103° or 104° F., respirations of 60 to 80, and pulse running from 140 to 170. Even in the favorable cases these symptoms continued for a long time, though the pulse and respiration rate slowly decreased and the cyanosis rapidly disappeared.

For purposes of comparison the author has divided his cases into various periods. These periods he decided upon before he had any idea how the figures would work out. He had not realized how far the treatment affected the death-rate till fully two years after it was first commenced, though it was obvious the cases did better. Starting with a hospital death-rate of 71 per cent, calculated on two series of consecutive cases prepared for him by his assistants (and these were no worse than the average), we pass on to the period which the author has named the "transition period," in which the rate falls to 54 per cent. This was the period in which the first attempts at the treatment were made. It includes a group treated entirely indoors, and a second group, the members of which had not had the advantage of the new conditions till they had already been some time in the hospital. In spite of this the second group had little more than half the mortality of the first. The next period includes the cases treated during the summer of 1901, in which all bronchopneumonic cases had the benefits of the new treatment from the day of admission. The rate falls very markedly at once to a little over 26 per cent. During the winter months in the sanatorium the rate was only one point higher. In the summer of 1902 all the pneumonic cases were treated outdoors as far as possible, and the sanatorium was used for the worst cases to sleep in at night. One would have expected a still further fall, but there is a rise to 34 per cent, possibly due to the damp weather, though it is not known if it was really worse than in the preceding year. A very marked rise is again noted when for reasons of administration the whooping-cough cases were moved to wards where no sanatorium was available. In the winter months under indoor treatment the death-rate was 57.8, a figure which, if not as high as the calculated hospital average, offers at least a great contrast to that of the open-air treatment. The improvement in the indoor rate the author attributes to the fact that they had learned not to be afraid of free ventilation.

The author gives in a second table the death-rate of all the cases he included in the first, divided into two groups: the first of those treated indoors; the second of those which from the first, or after indoor treatment, had sooner or later the benefit of treatment under the new conditions. The difference in the rates is again very marked.

Small numbers of cases give misleading results, and also figures can be twisted into meaning anything or nothing. But the author has endeavored to avoid fallacy as far as possible by dividing the cases into groups, before attempting to ascertain what the results would be. He found, as might be expected, that there are fluctuations in the death-rate. But broadly speaking, whereas under the old condition two out of three children who suffered from bronchopneumonia died, under the new two out of three recovered.

THE TREATMENT OF EDEMA OF THE LUNGS.

OWEN states in the *British Medical Journal* of January 2, 1904, that the administration of "expectorants" still forms the staple of current treatment of bronchial catarrh. Drugs that augment the fluidity of bronchial secretion or increase the activity of the expulsive cough are rationally indicated in dealing with such an affection. For ridding the lungs of edematous fluid "expectorant" action is no less obviously useless; edematous effusion is nearly always a thin fluid and is in a situation from which it cannot be expelled by coughing. The clearing of the air sacs is chiefly the work of the absorbent vessels. How much of the task of absorption may fall on the veins is not defined; it seems at least reasonable to assume that the bulk of it falls on the pulmonary lymphatics, which deliver into the great veins at the root of the neck, and the efficiency of their discharge is therefore affected by the degree of blood-pressure in these veins, which in its turn depends on the efficiency of the right side of the heart. A careful investigation of the right side of the heart is therefore an important preliminary to the treatment of edema of the lungs, particularly as the right ventricle, even if previously healthy, is liable to give way before the strain of any sudden and severe obstruction to the pulmonary circulation. The signs of dilatation of this ventricle, undue extension of dulness to the right of the sternum, displacement of the apex beat to the left, the presence of a heaving impulse over the middle of the heart, coupled with blunting of the apical beat, or the transference of the most marked impulse to the epigastrium, must be looked for. Of even greater importance is it to note the presence of any direct evidence of obstructed venous circulation, such as may be afforded by distention of the jugular veins.

If these signs are present and the conditions are at all urgent, venesection should be resorted to without hesitation. The letting of blood may be practiced without fear; but we are not sure the large amounts sometimes recommended are really necessary. The removal of 10 or even 6 ounces of blood has in some cases seemed to do all that is necessary. In very urgent cases, however, it is safe to go to 15 or 20 ounces at once.

The relief afforded by venesection is often very marked; not always as speedy as would be the case were the relief of the right ventricle the sole question at issue, but as speedy as can be expected on the assumption that absorption of some portion of the edematous fluid is the actual means of relief.

Failing venesection, other less efficacious methods of reducing the venous pressure may be resorted to. The application of six or eight leeches over the front of the chest is in some cases attended with good results, though less marked than those furnished by venesection. We may, further, use with effect free watery purgation, by means of elaterin, jalap, or gamboge. Diuretics are practically useless; a hot-air bath is not always applicable, and the only other really efficient sudorific (pilocarpine) is contraindicated by the probable state of the heart. Also dry cupping, as it is recommended by some authors, may be mentioned.

When marked dilatation of the right ventricle has existed, some damage to the left is nearly certain to have followed. On account of both ventricles bleeding should be followed up by the administration of digitalis, digitalin, strophanthus, canvailaria, or squill, to aid in restoring the tone of the stretched cardiac wall. None of these drugs are likely to be of avail unless any serious engorgement of the right side that may exist has previously been relieved by more direct means; but in lesser degrees of dilatation, unaccompanied as yet by urgent symptoms. one or other of them may suffice to overcome the cardiac difficulty without resort to the removal of blood.

Though isolated doses of alcoholic liquors, particularly brandy in hot water, are often of service as temporary stimulants, particularly in the early hours of the morning, when the forces of the heart and of the respiration are at their minimum, the continuous administration of alcohol when edema is present in the lungs is always useless, in the author's experience, if not actually injurious. Oxygen will, of course, find a place in the plan of treatment. The reasons for employing it are so obvious that they need not be enlarged upon. The effects, it is true, are only palliative; but then a mere postponement of complete asphyxia may be of cardinal importance in the case. The use of atropine and ammonia as stimulants to the respiratory center is at least indicated by theory if not fully confirmed by practice, and may be employed without risk. The author was in the habit of administering potassium iodide in these cases at one time, on account of its alleged "absorbent" properties, but he has seen no reason to think that it has any good effect.

One drug, and the most important of all, has not been mentioned. The writer has so often seen marked and speedy improvement, accompanied by a corresponding clearing up of the characteristic signs, follow the administration of strychnine by hypodermic injection in cases of pulmonary edema that the connection can scarcely be accidental. How the strychnine acts he does not pretend to say; its effects are equally observable in slight cases and in severe ones, he claims, in cases apparently independent of cardiac dilatation, and in cases accompanying it. For some years past the author has regularly resorted to this mode of treatment almost as a matter of routine, as soon as any signs of serious edema of the lungs appear, to whatever cause they may be due.

ERGOT IN ALCOHOLISM, MORPHINISM, AND THE GENERAL CLASS OF DRUG-HABIT CASES.

LIVINGSTON in the *New York State Journal of Medicine* for January, 1904, gives his experience with this drug in these difficult cases. The study of this class of cases and of nervous irritability and excitability in other classes has led the author to the positive conclusion that the nervous symptoms depend directly on a disturbance of the vascular system in the nerve centers, and that the circulatory disturbance is due to paralysis of the sympathetic or vasomotor centers.

The logical conclusion is therefore that the prime indication is to tone the relaxed, dilated vessels and bring about as promptly as possible an equilibrium of the circulation. There are several methods by which this result may be wholly or partly secured.

1. Cold to the head and spine by means of ice-cap and spinal bag, or hot followed immediately by cold sponging of the spine, repeating these alternately half a dozen times or more, and such séance several times a day.

2. Galvanization of the chain of sympathetic ganglia by use of the hand electrodes, stroking from occiput to sacrum, the electrodes one on either side of the spine, and separated about four inches from each other. The quantity of current should be 10 or 15 milliamperes and continued for twenty minutes. This should be followed by a similar application of five minutes each over the upper, middle, and lower cervical sympathetic ganglia; or the static current may be used, and the writer particularly recommends a prolonged application of the static wave for half an hour or more to the whole length of the spine with a spark-gap of five to eight inches, and this séance followed by sparking over the lines of the sympathetic ganglia.

3. Dry-cupping over the entire spine and including the sides of the neck, not with the old-fashioned alcohol cups, but with the modern valve-cups which are emptied by means of an air-pump.

4. Massage, which, properly applied by a skilled masseur, is certainly of much service in stimulating the general circulation, and therefore in relieving congested areas.

5. And last, but by no means the least effective method, hypodermic injections of ergot. While the other methods may be effective, the author presents this one as the most certain and the most prompt in its action, and he makes this assurance not only upon many practical demonstrations, but upon two grounds that he thinks will appeal to common sense and to reason: First, because the rationale is correct.

Disturbed function, whether of nerve centers, special organs, or glands, is directly dependent on altered states of the circulation in them, especially as to the caliber of the blood-vessels, a hyperemic state existing, due to the relaxed and stretched muscular coat. This condition can be thoroughly corrected only by so toning and strengthening the relaxed muscular tissue that it will contract and bring the vessels to their proper caliber, thus dispersing to other parts the excess of blood they had contained. Ergot contracts the sort of muscular tissue of which the muscular coat of the blood-vessels consists, but its most pronounced action is upon those areas of such tissue as are weak, relaxed, and stretched, and therefore upon the dilated blood-vessels. When the dilated vessels in any part have contracted the disturbance of function which they produced in that part ceases.

MODERN MANAGEMENT OF INFLAMMATION OF THE MIDDLE EAR AND CONTIGUOUS STRUCTURES.

LEWIS contributes an article on this theme to the *Buffalo Medical Journal* for March, 1904. He thinks that if an acute middle-ear inflammation can be treated early enough, incision of the drum may be avoided, but the ordinary measures recommended in the books are not effective. While sometimes useful, local depletion has usually but little effect on the deeper congestion, and the preparations of laudanum or other anodynes serve but to mask the real condition.

The local treatment found to be of greatest value in acute inflammation before pus has formed is the following:

℞ Cocaine hydrochlorat., 1 part;
Adrenalin chloride, 2 parts;
Glycerinæ, 4 parts;
Aquæ dest., 30 parts.

Sig.: Warm and drop in the ear every half-hour, or oftener if necessary.

The adrenalin constricts the vessels, and helps in the absorption of the cocaine, which of itself is not taken up freely by the dermal drum surface. The glycerin causes a serous transudation, still further relieving the congested vessels, and the combination which is based upon the known action of the drugs will give relief from pain almost immediately when other medicaments seem to be wholly inert.

The treatment of chronic discharges is again a serious matter. Whether or not we are to have a chronic flux will depend in no small degree on our treatment of the primary inflammation. If a free opening extending to the bottom of the tympanum be made in the membrane and the ear be cleaned with a mild antiseptic, the cessation of the discharge will probably be followed by a healing of the wound and a complete restoration of the integrity of the membrane. If, on the other hand, the incision is small or the membrane be allowed to rupture from the pressure of the contained secretion, the wound is often a jagged tear, the discharge erodes its edges, and shortly a tympanic opening results which from its nature will prove difficult, if not impossible, to close. The reasons for the difficulties met in controlling a chronic suppuration from the middle ear are due to its anatomical form, and a failure to bear this in mind when its treatment is undertaken. The form of the external auditory canal, it will be remembered, is that of a curve. The highest portion is usually in the middle. A perforation in the drumhead is often not quite at the bottom, and even if it is at the lowest part of the canal the tympanum sinks a little below its edge.

If now a chronic inflammation involves the secreting surface of the tympanic cavity the mucous discharge settling in the bottom of the warm, moist nest forms a perfect culture medium for the various infectious germs that readily gain entrance through the perforated membrane. If, as is quite common, syringing be employed, either by the patient or the physician, under usual conditions a little lake is left behind, and this very soon becomes alive with the various cocci that have not been destroyed, and that grow and multiply even more rapidly than before.

It is therefore surprising, in view of this palpable and self-evident fact, that so great an otologist as Bezold, in a recent article in the *Archives of Otology,* translated by Dr. Arnold Knapp without comment, should decry the most reasonable and efficient method of treatment yet devised—*i.e.,* the wide siphon drainage. In this paper he insists that the gauze becomes saturated and offensive, and by its retention acts as a septic poultice, increasing the condition which it is designed to re-

lieve. This would, of course, be true if the very essence of this method were not in the frequent replacement of the gauze. Its method of action can be more graphically shown by a sketch than by a description.

If the gauze be applied in this manner after thorough antiseptic cleansing of the external and middle ear, followed by drying with absorbent cotton, the pus is drawn from the middle ear, which is left in the best possible condition for normal healing. Every detail, however, must be carefully considered. If a granulation exist it must be dexterously removed by cautery, forceps, or snare.

THE POISONOUS CONSTITUENT OF TOBACCO SMOKE.

The gaseous products of the incomplete combustion of tobacco, whether it be smoked in the pipe, cigarette, or the cigar, are so complex that the question, To which constituent are the toxic effects of tobacco smoking precisely due? remains unanswered. Of course, it is well known that nicotine is a powerfully poisonous constituent of tobacco leaf, but it is by no means certain that the alkaloid reaches the system by way of the smoke in sufficient quantities to act seriously as a poison. To begin with, the amount of nicotine in tobacco is very small, and there is reason for believing that the quantity given in previous analyses has been considerably over-represented; moreover, though a volatile poison, nicotine does not occur in the free state in tobacco, but as an organic salt, which is not volatile, and which probably breaks up readily on combustion. It is doubtful whether a seventh part of the total nicotine in the tobacco reaches the mouth of the smoker, and some investigators deny that any nicotine occurs in tobacco smoke at all. But assuming that nicotine is the toxic constituent of smoke, the quantity must be quite minute, since in most mild tobaccos the proportion is rarely over one per cent. On the other hand, the incomplete combustion of tobacco gives rise to the formation of aromatic compounds, oils, bases, amines, and gases, some of which are undoubtedly poisons, and these are obviously produced in a far larger amount compared with the quantity of nicotine in tobacco.

In this connection too little attention seems to have been paid to the relatively large quantity of the poisonous gas—carbon monoxide—in tobacco smoke. When the insidious nature of this gas is considered its absorption in the system, which must be very rapid when inhalation is practiced, would sufficiently explain the train of poisonous symptoms which excessive smoking is apt to set up. In some particulars the physiological action of nicotine and carbon monoxide is similar. The dizziness and stupor, the trembling of the limbs and the hands, the disturbance of the nerve centers and of the circulation, palpitation on a slight effort, and the feeble pulse may be the indications of either carbon monoxide or nicotine poisoning. But since one ounce of tobacco gives no less than one-fifth of a pint of pure carbon monoxide gas when smoked in the form of cigarettes—and probably as much more in the form of cigars or in pipes—it is not improbable that to a very large extent these symptoms are due to the carbon monoxide.

We have recently tried the following instructive experiment which bears upon this point: Two or three mouthfuls of tobacco smoke from a cigarette were shaken up with a few drops of blood diluted with water in a bottle. Almost immediately the blood assumed the pink color characteristic of blood containing the gas, and further observations with the spectroscope confirmed the presence in the blood of carbon monoxide. Similarly a few mouthfuls of smoke from a pipe and a cigar were tried, and the results were even more marked. In this experiment we have some explanation in particular of the evil effects of cigarette smoking, for it is chiefly cigarette smoke that is inhaled—an indulgence by which the poisonous carbon monoxide is introduced directly into the blood. This effect of tobacco smoke upon the blood appears to be of considerable significance.—*Lancet,* Jan. 2, 1904.

THE TREATMENT OF TYPHOID FEVER BY ANTITYPHOID SERUM.

To the *Medical Record* of January 16, 1904, EINHORN contributes his results from using this serum. In perusing the author's table and the histories the following conclusions may be drawn with re-

gard to the serum treatment of typhoid fever:

1. In most cases the disease does not seem to have been materially shortened.

2. Either on the day after the first or on that after the second injection a marked reduction of fever usually occurs; this is about one to two degrees lower than previous remissions and lasts longer. The general condition, especially the sensory and nervous symptoms, is much improved, so that grave complications, such as sleeplessness, headache, restlessness, delirium, disappear nearly entirely.

The serum treatment of the cases in question was begun rather late, usually from the ninth to the fifteenth day. We may expect the results to be still better if these injections can be practiced still earlier. Chantemesse is certainly right in recommending injections, even in cases that are only suspicious of typhoid fever, before the diagnosis is certain.

The author's material is too small to allow far-reaching conclusions. This much, however, can be asserted, that the serum treatment of typhoid fever temporarily reduces the fever and improves the general condition, so that patients go through a more rapid and safer convalescence. The injections do not seem to be connected with any dangers. With the many injections given he never had any serious trouble; in two cases a passing erythema of the skin was observed at the point of injection, and in one case chills used to follow for from one-quarter to one-half hour. Abscesses were never observed. The author therefore believes that the serum treatment of typhoid fever is now already of decided value. There is no doubt that we shall soon have more potent sera, with which may be obtained more favorable results. At all events the treatment originated by Chantemesse certainly means a lasting progress in the treatment of typhoid fever.

A CASE OF POISONING WITH HYOSCINE HYDROBROMATE.

GIVEN reports a case of this character in the *Lancet* of January 2, 1904. He was hurriedly summoned to see the case, and was informed that the patient had received a teaspoonful of the medicine half an hour ago (this was confirmed by the amount absent from the bottle). After swallowing it he undressed and got into his bed. While undressing he remarked to his wife that his throat felt very dry, and she noticed that his speech was rather thick. Two or three minutes after he got into bed his wife heard him breathing very deeply; she tried to rouse him but could not, and sent for the writer, who found him deeply comatose, with stertorous breathing and flushed face. His pulse was 80 per minute and regular, his pupils were dilated and equal, and the conjunctival reflex was very slight. He could not be roused by any means. One-tenth of a grain of strychnine was injected hypodermically, and one ounce of brandy given by the rectum. After an hour and a half there was no improvement; the coma if anything was deeper, the conjunctival reflex was quite absent, the pulse was smaller and weaker, and there was some twitching of the arms and legs. The writer sent for his siphon stomach-tube and for an assistant to help him. In the meantime he injected one-sixth of a grain of morphine with one grain of caffeine citrate. In a few minutes the pupils became less dilated, but otherwise there was no change. An hour later, with the help of his assistant, he washed out the stomach by the siphon tube with hot water, removing a small quantity of partially digested food, and then passed into the stomach about eight ounces of strong, black coffee and one ounce of brandy. At 1 A.M., an hour and a quarter later, the conjunctival reflex began to return, and the patient flinched on pinching the skin on the inner side of the arm. Improvement slowly set in, the breathing became less noisy, and the pulse fuller and stronger. At 3 A.M. he could be partially roused for a moment by pinching and shouting, but at once relapsed into a somnolent condition; the pupils now reacted to light. At 5 A.M. he made an attempt to speak and swallowed some coffee. At 8 A.M.—that is, eleven hours after taking the dose—he was really conscious and able to speak for the first time, and he thenceforth made an uneventful recovery.

The prescription, which was for 1/200 of a grain of hyoscine hydrobromate in one drachm of water, with orders to send two ounces, was dispensed at a very trustworthy druggist's, and a very unfortunate

and dangerous, though instructive, mistake made in dispensing it. The druggists in question gave the writer every facility for investigating the matter. It appears that they had two establishments; at the one to which the prescription was taken they had no hyoscine in stock, so the dispenser sent a written message to the other place for 0.08 gr. of hyoscine hydrobromate in two ounces of water, which is equal to 16/200 of a grain, the exact amount he required for the whole bottle of medicine. The dispenser at the second shop, seeing that decimals were used, took it for granted that it was a foreign prescription, and that "gr." stood for grammes, and sent 0.08 gramme, which the first man sent to the author's patient. The result of this was that he got more than fifteen times as much as was intended, or about 1/12 of a grain. This appears to be a good object-lesson in the danger of the present condition of weights and measures in the Pharmacopœia, where it is now optional for either the decimal system or the apothecaries' measure to be used. Surely the time has come for the rational and scientific metric system to be enforced as the official standard.

The literature of hyoscine poisoning seems to be scanty, and points to the fact that the drug is rather uncertain in its action, sometimes producing poisonous symptoms in very small doses, while in other cases fairly large doses are tolerated. This is probably due to variations in its purity and mode of manufacture. Professor J. Dixon Mann, in his work on Toxicology, states that in one instance 1/40 of a grain taken by the mouth produced severe symptoms of poisoning, as did 1/30 of a grain given hypodermically in another. On the other hand, Allan Gray reports a case where 1/50 of a grain was used every night with good effect. Dr. L. A. Weatherly, who used it largely in asylum practice, in an article in the *Journal of Mental Science* for July, 1891, states that he considers that the dose should be from 1/300 to 1/100 of a grain, very cautiously increased in some cases to 1/50. With regard to antidotes, besides those used in this case pilocarpine has frequently been employed. While the writer had it with him he confined himself to the use of strychnine, morphine, and caffeine, the last both hypodermically and as strong coffee, and it is in a great measure, he believes, to the last drug that the patient owes his recovery.

THE TREATMENT OF NEURALGIA BY INJECTIONS OF OSMIC ACID.

In the *Medical Chronicle* for February, 1904, WRIGHT gives the following facts in regard to this plan of treatment:

It appears that Billroth and Neuber were the first to employ osmic acid for neuralgia. They used repeated injections by puncture through the skin without exposure of the nerve; as many as twenty injections were given in some cases. Eulenberg, employing a similar method, got good results in only three out of twelve cases, which included neuralgias of the brachial, sciatic, and trigeminal nerves.

Schapiro, who used a one-per-cent solution of osmic acid in glycerin and water, records five successes out of eight cases at periods two to six months after injection.

Jacoby claims eight cases of cure out of eighteen sciaticas, and warns us that it is "dangerous to implicate a motor nerve."

Fränkel, of Hamburg, found experimentally in animals destruction of axis cylinders and degeneration of white substance with epineuritis and myositis as the result of his injections.

Cohen, of Philadelphia, used repeated injections, "without exposure," into the sciatic nerve, using as much as 30 minims of a one-per-cent solution.

Ellis records the occurrence of some irritation after injection into a thumb in which pain followed a strain.

Merces injected deeply and repeatedly into the sciatic region, with temporary relief and no ill effects.

Franck obtained three successes by direct injection, and Turner records a case of trigeminal neuralgia of two years' standing in which he injected the infra-orbital, and after ten days relief followed, and lasted six months—*i.e.*, to the date when the patient was last seen.

In November, 1899, Mr. (now Sir) William Bennett recorded eight cases of trigeminal neuralgia, one of painful stump, and one of painful median nerve after a wound. He exposed the terminals

in the trigeminal cases and injected 1½-per-cent solution. His first case was in 1897, and his results range from 2½ years' duration downward. Delay in relief and slight relapses occurred in one or two, but his cases all showed good effects, and it is to his paper that the author is indebted for his first acquaintance with the method.

It will be seen that most of the surgeons who have used osmic acid have injected it more or less at random without exposing the nerve trunk. Such a method is quite sufficient to account for irregular and defective results, and it is also remarkable that so little is said of any ill effects considering the very marked changes that osmic acid produces in the tissues, as shown experimentally by Fränkel and observed by the writer in a case in which he repeated the injection, and on removal of a portion of muscle which had been attacked by the acid Dr. Charles Melland found marked degenerative myositis. In all his cases the writer has exposed the nerve and injected a 1½- or 2-per-cent watery solution into the trunk or its branches; sometimes the injection has been both toward the periphery and toward the center, and the acid has generally escaped more or less freely into the tissues immediately around the nerve.

Most of his cases are much too recent to attempt to draw any conclusions as to the permanent value of the method. It is further impossible to eliminate the effect of the exposure and the mechanical results of manipulation and puncture of the nerve, and in some cases of unintentional section by the trephine. It is clear, however, that if this method is employed the nerve should be fully exposed, and not merely a chance injection made through the skin. The author believes also that the immediate results in his cases, as regards both harmlessness and at least temporary relief, quite justify the use of the plan before resorting to any such severe procedure as excision of the Gasserian ganglion. In short, the author believes the method should have a further and extended trial. It will be seen that he has preferred to expose and inject the trunk in some cases rather than to deal with the terminals only, and this is a point that requires to be settled, since the severity of the one procedure is of course much greater than that of the other. It is also of importance to remember that delay in relief may occur—*i.e.*, that pain may continue for some days or even longer after the injection and then pass off. So that it is not necessary to assume failure or to repeat the operation until time has been given to make sure that it is necessary.

A STRANGE RESULT OF IODOFORM DRESSING.

McNAUGHTON-JONES writes of a case in which iodoform produced an untoward effect, in the *Medical Press* of February 24, 1904. He reminds us that the local toxic effects of iodoform occasionally result in cutaneous conditions which are more or less serious, according to the extent of their invasion of the skin and their spread to other parts. The more common are general redness and swelling of the skin of the abdomen and down the thighs, sometimes extending from the trunk to the upper extremities, the eruption being very similar to that of scarlet fever. In several cases it has been associated with a fine vesicular eruption, principally affecting the region of the wound. Other observers have had cases in which the vesiculation has extended into the deeper layers of the skin, resulting in considerable edema, and in some instances in a sanguinolent effusion resembling superficial gangrene.

A patient, aged thirty, on whom he recently operated for retroversion of the uterus by ventrosuspension, at the same time resecting an ovary, was progressing favorably until the third day after the operation. She then complained of irritation, and some smarting in the neighborhood of the wound, which had been stitched with celloidinzwirn, a pad of moist sterilized 10-per-cent iodoform gauze being placed over it, and covered with coeletin. On raising the dressing the nurse found some slight swelling and redness along the area of the incision. On the following day, when the wound was examined, the redness had extended to a considerable area, and the entire surface of the skin for a few inches at either side was vesicated. Attributing the condition to the iodoform, this was removed.

and the wound lighly sponged over with some weak formalin solution, dried, and dusted with the subgallate of bismuth, covered with plain sterilized gauze, and protected with coeletin. The distress continued, and on removing the dressing the next day several large vesicles were found, like those raised from an ordinary blister. One or two had burst, and the others were opened, and a quantity of serous fluid evacuated. There now appeared on the arms and hands some eczematous vesicles, and also a papillary eruption here and there, which was attended by great irritation. Much the same condition followed on the legs. The palms of the hands became red, and finally desquamated. Some three days later fresh vesicles appeared in the neighborhood of the wound. There were no constitutional symptoms, and the range shows that there was but slight elevation of temperature on a few occasions, while the pulse remained normal. The skin healed by first intention, the suture being removed on the eleventh day.

Inquiring into the history of the case, it appeared that many years previously the patient had had an ulcer on the leg. This had been dressed with iodoform, when much the same effects had followed, the leg becoming edematous, and a slough, extending some distance up, leaving an extensive cicatrix. The effects of the dressing were not discovered until after the toxic consequences had resulted. From her childhood she had suffered from an eczematous tendency, and there were symmetrical palmar patches of dry eczematous desquamation of long standing on the hands.

She left the home perfectly well at the end of the fourth week, with only some remains of the eczematous condition in parts.

This case is peculiar in the large blebs, somewhat like those of pemphigus, that appeared in the neighborhood of the incision. One cannot help pondering on the consequences which would have followed in such a case had vaginal hysterectomy been performed, and the vagina tamponed with iodoform. The wound was photographed when the vesiculation was at its height, but unfortunately, owing to defective light, the photograph was not successful. One thing is clear—it is worth while inquiring, in any abdominal or pelvic operation in which iodoform is likely to be used, whether the patient has been subject to any cutaneous affection, and if so, to substitute another dressing for that of iodoform.

THE TREATMENT OF ARTHRITIS DEFORMANS.

McCRAE, of Baltimore, states in the *Journal of the American Medical Association* of January 9, 1904, that in the discussion of this matter we are again met with the fact that there are two great groups of cases, the early and the late. The treatment in the first may undoubtedly be of great help as a preventive measure of farther damage. In the latter condition it can be only palliative, although even here much good may be done. We may first discuss the treatment of an acute attack. Patients are better at rest, and probably it is well to keep them clothed in flannel. If there be much fever the diet should be liquid. Ordinary attention should be given to the bowels. For remedies for the pain we have found that salicylates are of comparatively little use. Antipyrin in doses of five grains is often effectual. Guaiacol is highly recommended by some. Small doses of codeine may be used; morphine seems to be rarely required. Of local measures to the joints the ice-bag sometimes gives considerable relief, or the wrapping of the joint in cold compresses surrounded by oiled silk. These may be kept on constantly. Oil of wintergreen or lead and opium lotion applied locally is of some help. The hot-air baking very often gives relief to the pain. Gentle massage may be of use. In spite of all measures, in some cases the patient is but little relieved.

After an acute attack, whether the patient be absolutely free of symptoms or has some damage left in the joints, the great principle of treatment seems to be keeping up the nutrition. The patients should be out-of-doors as much as possible. They should be given all the nourishment they will take, and this of a general kind. The mistake is too often made in considering these patients to be rheumatic or gouty, and meat is almost totally cut off. On the contrary, a full meat diet seems especially helpful. They should

be given nourishment between meals and at bedtime, and every effort made to improve their general condition. With this, of course, local derangements are to be carefully treated. Carious teeth and pyorrhea alveolaris should receive attention. Any stomach or bowel disorder should be remedied, and every endeavor made to keep the patient under the most favorable conditions. General massage is usually helpful. Concerning the various forms of bathing no general rule can be laid down. In England there can be little doubt of the benefit of such waters as at Bath. In this country, while some patients are doubtless helped by the bathing, many others are made distinctly worse. That this is due to too prolonged hot bathing to the point of depression may be possible, but our cases rather suggest that great caution should be exercised in advising, at any rate, any severe course of baths.

The local treatment of the joints is very important. First comes massage, which in the beginning ought to be given by an assistant. But as a general rule later on the patient should be encouraged, as far as possible, to rub himself. There is usually the double benefit to the joint rubbed and to the hand employed. The hot-air treatment is especially useful in many of these cases. The oven may usually be heated to 350° F. with perfect comfort to the patient, the importance of short applications being always kept in mind. Probably the majority of cases are helped most by periods of only twenty to thirty minutes in the hot-air bath, and periods of an hour and an hour and a half are undoubtedly, in many cases, positively harmful.

The question often arises as to the amount of use that should be made of the affected joints. Leaving out the acute attacks, as a general rule, the more the joints are used the better. The mistake is often very serious when the patient is put to bed and any attempt at using the joints discouraged. The benefit of use is well shown by the temporomaxillary joint, which, although frequently involved, relatively rarely shows permanent damage. These measures may result in great improvement, even in a far advanced case, as, for example, in the case of a woman who for eighteen months had been bedridden, had been unable to feed herself, and who had some teeth pulled in order to be fed. After three months of treatment she was able to talk moderately well, could dress and feed herself, and open the mouth fairly well. Such cases are, of course, not common, but they serve to show that the outlook is not always without hope. There are two things necessary, probably both in the physician and in the patient. These are perseverance and patience. There are probably few cases, even of advanced disease, that cannot at any rate be helped by persistent, patient, systematic treatment.

THE TREATMENT OF DIABETES MELLITUS.

WILLIAMSON, writing in the *Lancet* of January 23, 1904, thinks that while it must be admitted that we have no specific remedy for diabetes, several drugs have a distinctly beneficial action. The author has demonstrated clearly that two drugs at least—salicylate of sodium and aspirin, given separately or combined—have a definite action in diminishing the sugar excretion in certain cases of diabetes of the milder forms. These conclusions are based on many observations made on cases of diabetes in the wards of the Ancoats Hospital. The patients have first been kept for ten or fourteen days or longer on ordinary hospital diet, or on a diet similar to that which they were taking before admission to the hospital. During this period no drug has been given except a few minims of peppermint water, and the sugar excretion has been determined daily. It has thus been possible to estimate the constant sugar excretion apart from drug treatment. Then for a period of two or three weeks or longer salicylate of sodium or aspirin has been given. The sugar excretion has diminished. The drug has been then discontinued and peppermint water given (the diet being kept unaltered). The sugar excretion has increased. Similar observations have been repeated on the same patient, sometimes on many occasions, with the result that whilst the salicylate of sodium or aspirin was being taken the sugar excretion has diminished. The writer published records of such cases in 1901 and 1902. Since these

dates he has had similar favorable results in other cases of the mild forms of diabetes in hospital and private practice. The diminution of the sugar excretion has not been due to the occurrence of any complications, and the patient has felt quite well whilst taking the drugs.

Neither sodium salicylate nor aspirin is a specific for diabetes. The writer states he has never found any definite diminution of the sugar excretion under the action of these drugs in the most severe forms of the disease; also in some of the milder forms they have not had any marked effect; but in other cases of the milder forms he believes he has obtained conclusive evidence of their beneficial action. As regards the mode of administration, he has usually given sodium salicylate in peppermint water, commencing with ten grains three times a day and increasing up to 15 grains, three, four, or sometimes five times a day if necessary. With large doses it is important to watch for toxic symptoms, and to discontinue the drug if these occur. Pure natural sodium salicylate is the better preparation. Aspirin is best given as a powder—ten grains twice a day, rapidly increasing the dose up to 15 grains four or even five times a day. It is best to order the aspirin powder to be taken in a little water to which a drop of lemon juice has been added. Soda water or alkalies should not be taken just after the aspirin powder, otherwise the drug would be liable to decompose in the stomach and cause gastric symptoms. Some patients take the sodium salicylate better than aspirin; others take aspirin better. The latter drug is less liable to cause toxic symptoms in large doses. Sometimes cases are met with in which one of these drugs can be taken but not the other. Recently the author has combined the two drugs with good results, giving sodium salicylate up to 15 grains three or four times a day, and one powder of aspirin, 15 grains, at night. Whenever the two drugs are given it is important to commence with small doses and steadily to increase the quantity, watching for bad effects.

By a restricted diet, by the use of casoid or protene bread, sugar-free milk, etc., along with the administration of salicylates or aspirin, often satisfactory results can be obtained in the milder forms of diabetes. The salicylates and aspirin are of service especially, because they often enable satisfactory results to be obtained without the employment of an absolutely rigid diet. Cases are, however, sometimes met with in which salicylate and aspirin cannot be taken owing to the disagreeable symptoms that they produce even in small doses.

Many other drugs have been used in the treatment of diabetes, and it is probable that opium, morphine, codeine, sumbul, uranium nitrate, arsenic, and antipyrin have in certain cases some beneficial effect. An objection to the first three drugs is their constipating action, and this is especially undesirable in the most severe forms of the disease, since constipation appears to predispose to the onset of coma. It is important, therefore, when these drugs are given that care should be taken to keep the bowels regular. In the most severe forms of diabetes, in which the urine gives a deep brownish-red coloration with perchloride of iron, the author believes the alkaline treatment, bicarbonate of sodium in large doses, is of some service in postponing the onset of coma. The dose should be steadily increased up to two, three, or four drachms or more daily. The bicarbonate is best taken in frequent doses in soda water or milk. It is very important not to produce gastric disturbances by the sodium bicarbonate, but it is remarkable how well these large doses are usually taken by diabetic patients.

THE USE OF ANTISTREPTOCOCCIC SERUM IN THE TREATMENT OF SCARLET FEVER AND DIPHTHERIA.

MACKIE in the *Lancet* of February 20, 1904, gives the following conclusions in regard to this subject, which is particularly interesting, in view of the fact that this serum can now be obtained in this country:

1. Antistreptococcic serum is of distinct value in a certain number of cases of scarlet fever, particularly in those where the throat lesion is severe and toxemia is going on.

2. Bacteriological examination will give no sure guide as to the cases in which

serum will be beneficial, therefore it is advisable to give the serum early and to make the bacteriological examination afterward.

3. The serum ought to be given early in the disease just as in diphtheria. The longer the disease has lasted before the serum is used the less likelihood is there that it will be beneficial. Antistreptococcic serum is too often brought in with the strychnine and oxygen, when it is unreasonable to expect it to do good.

4. If the first dose or two have no effect on the temperature, its continuation will probably not be of any value.

5. The serum is liable to produce urticario-erythematous rashes.

6. Even in those cases in which it does no good there is no evidence to show that it does harm.

THE NATURE AND MEDICAL TREATMENT OF SPASMODIC ASTHMA.

WILKINSON, in an article with this title in the *Medical Chronicle* for January, 1904, states that where asthma shows itself by repeated morning sneezing—the author does not refer to "hay asthma"—he believes arsenic rarely fails.

In ordinary asthma he commences with three minims and rises to five minims of Fowler's solution, given three times a day after food, and continues the treatment, with occasional intermission, for several months. Patients vary very much in the powers of taking arsenic without ill effect, but so far, by accommodating the dose to their capabilities, they have rarely failed to secure a prolonged trial. By far the commonest toxic symptom is gastrointestinal irritation. In some such cases a carbonate of bismuth mixture taken before the meal will prepare the way for the arsenic after the meal. This plan he has adopted with success in several cases of chorea, where the difficulty more frequently arises on account of the larger dose required. Whether arsenic in the form of mineral water is more effective than as usually administered is still in doubt. It is a point worth investigating.

The efficiency of arsenic in producing pathological lesions in the late beer epidemic—and in his somewhat extensive experience nerve and skin phenomena were quite out of proportion to gastrointestinal symptoms—he is strongly disposed to think was due, not merely to the quantity of the drug, but to the form in which it was taken. He believes that free dilution markedly accentuates and considerably modifies the action of some drugs, amongst which he places arsenic and potassium iodide. By the long-continued use of arsenic he has noted the habit of migraine and asthma cured in the same individual—a case in which there was not the slightest family or personal tendency toward the "uric acid diathesis." This action of arsenic in asthma is not surprising, as its use by the Styrian peasants to improve "the wind" is well known. Moreover, if the nerve fibers distributed in the epithelial surfaces of the nose or bronchial tubes be at fault we do not wonder that the drug most effective in touching the nerve-endings and epithelia of the skin and bladder, etc., should thus alter the asthmatic receptive areas. Its chemical congeners, phosphorus and antimony, the author has not yet systematically tried. He believes, however, that the latter drug deserves more consideration than we usually give to it. Its disuse in large doses as an emetic and depressant has unduly detracted from its value in small doses as an alterative and febrifuge.

Undoubtedly we must place alongside arsenic as a preventive in asthma iodide of potassium. It may succeed where arsenic altogether fails. For continuous administration he rarely gives more than five grains three times a day, combined with aromatic spirit of ammonia, and, if need be, a vegetable bitter. The impression he has received is that potassium iodide neutralizes the tendency to the attacks rather than removes the peculiar nervous basis of the disease. Its influence therefore is often immediate, and the intermission of the remedy is more likely to be followed by quick relapse of the disease than with arsenic. The author has at present a case in point in the outpatient department at the Manchester Royal Infirmary. A young man, twenty-six years of age, for two months had a short but very severe paroxysm of asthma each night, the dyspnea being most intense from 2 to 2.30 A.M. The iodide mixture stopped the attacks at

once, and for the next eight weeks he had only one slight paroxysm, and was able to follow his employment. The slight relapse was produced by a dietetic indiscretion. Thinking himself cured, he omitted the medicine for one week and the attack returned, but again yielded at once to the treatment. This salt may be administered without harm for a long time and without intermission, as it is so easily excreted. The last dose should always be taken at bedtime, and when it is desirable to diminish the amount of the drug the dose taken earlier in the day should be the one omitted. Iodide of potassium given as above is by far the best remedy for the secondary asthmatic spasm which adds to the nocturnal difficulties in chronic bronchitis. This element is present by night more commonly than is generally realized.

The author has not been able to satisfy himself that hydriodic acid is in any way superior to the potassium salt. One medical friend of his, after a personal trial, returned to potassium iodide; another fancied that the acid gave him more relief. In the author's experience no other drugs compare with arsenic and the iodides as preventives. Belladonna and quinine he places next on the list. Quinine, mentioned by Dr. Hyde Salter, is used by the Americans, the author states, who appear to treat the patient's "constitution" quite as much as his "disease." Where a gouty tendency is present the author would, of course, adopt measures for dealing with the excess of uric acid, but he is not one of those who hold that uric acid plays so important a rôle in medicine as some would have us believe. He says this, of course, with full appreciation of the good work which has been done in this special department.

THE NECESSITY OF A RELIABLE SIGN OF COMPLETE ANESTHESIA.

WHITE expresses the belief that we need a sign of this character, but is not able to find one. He asks in the *New York Medical Journal* of February 27, 1904, if there is any one sign by which the anesthetist can tell in every case that the patient is thoroughly under and relaxed before an incision is made. His experience leads him to say there are no positive signs in all cases by which we can be guided, though general rules apply to many. The loss of the corneal reflex has been used for years as an indication of the anesthetic state, and it is depended on to this day by a great many men. The writer characterizes the practice as unscientific and useless, and the application of this test a score of times during a single operation is positively barbarous. In children, especially, it is unreliable. We now hear little of the "Simpson snore," but that was said to be a good guide. The condition of the pupils is probably most to be depended upon, but any anesthetist of wide experience will not place implicit confidence in the movements of the iris. The classical signs are large pupils, reacting to light, partial anesthesia; small pupils, contracting slightly or not at all to light, moderate to deep anesthesia; and wide pupils not reacting, profound and dangerous anesthesia. We may say that the pupils, as an index, stand in the same relation to anesthesia as the pulse does to fever. While in the majority of cases an accelerated pulse does indicate fever, how many physicians are willing to dispense with their thermometers? The pupils may be a valuable asset in nine out of ten cases, but that is far from perfection.

The writer believes that his experience is not exceptional, but the pupils in so many cases have been misleading that we need a sign more constant. In several cases in the last six months, the anesthetic given slowly, never were contracted pupils produced, notwithstanding that the patient was undoubtedly under the influence of chloroform; and in another instance, in order to keep the patient relaxed, the iris was scarcely visible and did not react to light, while the pulse remained good, and no especial evidence of shock was reported subsequently. In many cases the writer has announced, after carefully noting small pupils, that the patient was ready for operation, and has been quite crestfallen on hearing mutterings as soon as the incision was made. In circumcision cases this is not rare. Other anesthetists have had similar experiences, and the author cites an instance in which a house physician was assaulted by a colored woman who he

thought was "under." Simply because the patellar reflex is lacking or the jaw clonus is present we cannot say that a pathological condition exists. The rule holds good with the action of the pupil. Occasionally the pupils are irregular, and in another instance adhesions may be an obstacle to the free action of the muscle, and in highly nervous or sensitive individuals the iris may be most capricious. All in all, this is a guide that is far from infallible, and entirely too much confidence is placed in it.

A sign which has appeared more constant is the stretching of the sphincter ani; the patient if deeply anesthetized remains perfectly quiet and breathes naturally during this test; but for obvious reasons this test is not applicable in all cases.

Anesthetists need a sign upon which they may place the utmost reliance, and presence of which may justify them in saying fearlessly to the surgeon, "He is ready." It would prove a boon to the surgeon, the patient, and anesthetist, and it remains for intelligent observation to detect one.

THE TREATMENT OF SYPHILITIC AND ANEMIC HEADACHE.

The *Glasgow Medical Journal* for January, 1904, contains an article by HINSHELWOOD on headache. In its course he tells us that amongst the toxemic headaches we also class the syphilitic headaches. In all cases of chronic headache this is a possible cause which should never be lost sight of. More especially should we suspect syphilis if the headache has distinctly nocturnal exacerbations. Syphilitic headaches are often of a most persistent and chronic character, and may have existed for a very long time before their true character is suspected. This headache may be due to a variety of causes—periostitis of the cranium, meningitis, or intracranial gummata. All give rise to headaches, sometimes of a dull and sometimes of a very acute character, but most syphilitic headaches are worse at night, and this should always rouse our suspicion as to their true character.

The writer has seen many cases of headaches where the patients were sent to him with the idea that eye-strain was the cause, but where the distinctly nocturnal character of the headache directed his attention to the real cause, as was subsequently proved by their rapid disappearance under treatment. The physician is often misled by the absence of syphilitic history or syphilitic traces on the body of the patient. But syphilis is such a variable disease that the experienced observer attaches no importance whatever to the absence of syphilitic history, and this even when he is quite certain that the patient is telling him the truth. The primary lesion and usual secondary symptoms may have been so slight and trifling as to have escaped altogether the notice of the patient, and yet he may suffer from later syphilitic manifestations in a most severe form. This cannot be too strongly insisted upon, that the absence of syphilitic history is of comparatively little moment in diagnosis. Should a patient suffer from chronic headache with distinctly nocturnal exacerbations, and for which no cause can be discovered, it is a very safe rule to put him on a short course of specific treatment. The author's usual prescription is 1-12 grain hydrarg. bichloride and 20 grains of potassium iodide thrice daily. If the headache be of syphilitic origin it will very soon be influenced by this treatment. There is nothing more striking than the rapid relief often given by this means to obstinate headaches, from which the patient has been suffering for a long time without their true character being suspected.

In order to perform its functions properly and without discomfort, the brain must not only be supplied with pure blood, but it must be sufficient in quantity as well as in quality. The brain has a very large vascular supply, and it has been estimated that it receives fully one-fifth of the blood in the human body, a fact which vividly bears witness to its immense and never-ceasing activity. If its functions are to be properly carried on it is absolutely essential that it should be freely supplied with the blood of proper quality.

Hence, in the various forms of anemia, where the blood-supply to the brain is defective both in quantity and quality, headache, generally frontal or vertical, is a very frequent symptom. These anemic

headaches are often relieved by the recumbent posture, which insures a more abundant supply to the brain. Remedies such as phenacetine and antipyrin may give temporary relief, but cure of the headache will only be produced by the cure of the anemia, and sending a sufficient stream of rich blood to the brain. This anemic headache occurs both in the ordinary form of anemia, in which there is chiefly a deficiency of hemoglobin (as in chlorosis), and also in cases where the anemia is due to loss of blood. The pain is generally frontal or general, and in chlorosis it is often complained of as being peculiarly intense at the back of the eyes, the patient often describing the sensation as if the eyes were being dragged back into the head. Frequently patients have consulted the writer with the firm belief that this pain was due to eye-strain, and it was very difficult to convince them that it was due to the impoverished condition of the blood.

TREATMENT OF GALL-STONES.

HALE WHITE gives the following views in the *Clinical Journal* of February 10, 1904. He thinks that in every case of gall-stones the first thing to be decided is whether or not to ask a surgeon to operate. Operation is imperative when jaundice with repeated rigors and attacks of pyrexia render infective cholangitis likely, for such a condition may easily become suppurative or lead to portal pyemia; but the author had a patient whom he and a well known surgeon decided was too ill for operation, and she recovered completely without operation. Doubtless the stone ulcerated in the duodenum. Operation, too, is imperative if there is suppuration round a stone. But in the great majority of cases the indication for operation is not imperative, and much thought has to be applied to each case. The following points must be borne in mind:

Operations for gall-stones may be very difficult, and they should not be undertaken by any other than skilful surgeons. In the next place there is no doubt that people whose bile-passages are constantly being irritated by gall-stones are more liable to hepatic carcinoma than others, but although this extra liability is a point in favor of operation it is by no means so great as to compel operation in every case. Lastly, the social position of the sufferer makes much difference. If he is a member of the working classes and frequent attacks of biliary colic mean a loss of money, on this ground alone operation may be necessary. Gall-stones in the gall-bladder frequently produce local peritonitis around the gall-bladder, and that may lead to much pain from the formation of adhesions, which may even constrict the duodenum and lead to gastric dilatation. We must remember that the tendency to the formation of gall-stones ceases as people grow older; it is rare to find them active in people over seventy.

There is no doubt that medical art can do much to relieve the sufferers from gall-stones, quite apart from operation. In the first place, morphine and a hot bath will relieve the immediate pain. But we must do more than this; we must try to prevent its recurrence. There is no doubt that tight lacing must be given up, for it displaces the liver downward, and in such a way as to hamper the gall-bladder so that the flow of bile is impeded; further, such tight lacing impairs the respiratory movements, which probably greatly aid the flow of bile. Gentle, systematic exercise is useful, for it not only helps the general health, but increases respiratory movement. Horseback exercise has an especial reputation for these cases. The most divergent views have been expressed as to the influence of diet, but we do not yet know any article of food that encourages the production of gall-stones, and all that is necessary is that food should be small in quantity and easily digestible. All experience indicates that it is very desirable to keep the bowels open, and that this is best done with salines. These are commonly given as a draught of any of the sodium and magnesium sulphate natural mineral waters. There is no doubt that patients who are liable to attacks of gall-stone colic are very much benefited by periodic visits to Carlsbad and Marienbad, both of which have natural saline aperient waters. The patients are made to drink the waters and are put upon a restricted diet.

But often for some reason or another patients cannot go to Carlsbad or any similar place, and then the best thing is to

make them take large quantities of olive oil. Gall-stones are to some extent soluble in olive oil at the temperature of the body, and it is believed that oleic acid is absorbed and excreted by the bile. Be this as it may, many cases have been benefited by olive oil. No one pretends that it will cure all cases. How can we hope that it will benefit the common case in which a dilated gall-bladder is stuffed with fifty or one hundred gall-stones so tightly packed as to form almost a solid mass? The oil can do no harm; it can be stopped at any moment; and if immediate operation is not decided upon it should be given a trial. It is a good thing for the patient to take as much olive oil a day as he can, but he need not take more than half a pint a day. It should be taken with meals. The simplest plan is to drink it out of a wine-glass, and some patients can do this. Many, however, are nauseated, and then the oil may be taken with salad or mashed up with potatoes or fish. If it produces nausea however taken, oleate of sodium, sold under the name eunatrol, may be given; about thirty grains a day should be taken, and it is best given as a pill. Usually when these large amounts of olive oil are taken an aperient is not necessary, but if there is the slightest tendency to constipation a saline mineral water should be given on rising in the morning.

ANTIPYRIN AND PURPURA.

The *British Medical Journal* of February 6, 1904, quotes from the *Comptes Rendus de la Soc. d'Obstetrique de Gynecol. et de Péd.*, October, 1903, a case of much interest, namely, an instance of sudden death during pregnancy when the patient had taken a large dose of antipyrin and had a purpuric rash. Unfortunately the patient's decease occurred quite unexpectedly within a few hours after her admission into a hospital, so that the blood was not examined. She was a needlewoman, aged twenty-two, in the sixth month of her first pregnancy. Six days before admission she had had a bad chill and lumbar pains after getting her feet wet. On the next day the midwife prescribed four cachets of antipyrin, which the patient, through a misunderstanding, swallowed all at once. She took six more at intervals on the third day. As little urine passed triticum repens was prescribed. On the fourth day a doctor was called in; he found the patient suffering from intense sacral pains, and gave salophen and Dover's powder. On the morning of the fifth day the patient seemed better, lactophenine and exalgine were prescribed, with plenty of milk; but in the evening she was much worse, an ecchymosis was noted in the right conjunctiva, and there was slight delirium.

On the sixth day, as the patient was very ill, she was admitted into the Hospital Beaujon at 10 P.M. She was in full possession of her faculties. The body was covered with a rash such as is seen in certain subjects after a strong dose of antipyrin. Subconjunctival hemorrhages, bright-red and elevated, were noted in both eyes on the inner side of the cornea. The abdomen and back, as well as the thorax below the mammæ, were covered with purpuric spots of different sizes. The tongue and teeth were black, the gums injected, the pulse 120, the temperature 99°. The pregnancy seemed to be progressing normally. A careful examination of the blood was to be made on the following morning, but the patient, after free dry-cupping to relieve the anuria, which was complete, died suddenly at 3 A.M. Both layers of the pericardium, the peritoneum, and the mucous membrane of the stomach and upper part of the duodenum showed abundant ecchymoses. The uterus, fetus, and placenta were quite normal and free from bleeding points, though there was a very large subserous hemorrhage in Douglas's pouch. In the kidneys the hemorrhages were limited to the connective tissue under the capsule.

Rudaux is doubtful about the precise interpretation of the purpura. It was not purpura simplex, as there were marked visceral hemorrhages; not infective purpura hemorrhagica, as there was no fever. Werlhoff's disease, rejected as a special variety by Dieulafoy, is never so severe as was this case, which might have been an instance of Hayem's medicinal or toxic type classed under deuteropathic purpuras. As for the cause, antipyrin poisoning seemed very likely, as there was a characteristic rash, and hemorrhages have been observed in undoubted cases. Auto-

infection of pregnancy suggested itself, as the pains preceded the administration of the drug. Rudaux puts forward a hypothesis that the heavy dose of antipyrin produced toxic effects in a woman whose liver acted badly owing to the biliary stasis due to pregnancy.

The case is of much importance to the toxicologist; many women take quantities of antipyrin without medical advice, whilst the causes of sudden death during pregnancy are often subtle and may lead to judicial inquiries.

MANAGEMENT OF RHEUMATISM IN CHILDHOOD.

Writing in the *Medical Record* of January 9, 1904, WINTERS states that for the control of active rheumatic manifestations there are two leading and chief factors—the state of the digestive organs and the diet.

With a coated tongue he gives calomel, followed by rhubarb and soda; the latter to be persisted in as long as the tongue is furred. The dose of the rhubarb is proportionate to its effect on the bowels; soda should be in twenty-grain doses three times a day, before nourishment.

Milk should be the sole food as long as evident symptoms remain.

The proteid of milk contains no nuclein, and yields no uric acid. The urine becomes uric-acid-free on milk diet. Milk contains an abundance of phosphate of potash—muscle-salt. Citric acid, a valuable antirheumatic, is present in considerable amount.

The first extension of the diet should be the addition of a strained cereal to milk.

Mention of cereal within hearing of the patient is unfortunate and injudicious. The rheumatic child invariably has an abhorrence of cereals. This constitutional loathing of the child's natural food is traceable to faulty feeding. Savory broths, soups, beef juice, excess of meat, etc., create a repugnance to the vitally indispensable cereals and vegetables. Animal broths are totally destitute of food properties. This is ancient, recent, and unalterable physiology. Nevertheless, physicians wittingly and knowingly recommend them for children, where the first requisite of all food is its building or tissue-forming value. There is a vast amount of obscure ill health in children from heedless use of these foodless preparations.

When animal food is to be added to the diet it should be in the form of meat, not broths or beef juice. The contained extractive of broths and beef juice, by overstimulating metabolism, aggravates rheumatic anemia and every rheumatic tendency.

Cereals must be eaten without sugar.

Sweets and animal broths in children, and alcohol and sweets in adults, are the bane of the rheumatic patient, and constantly discredit the physician by thwarting all treatment.

Vegetable soups—pea, asparagus, celery, potato, bean, tomato—are nutritive and appetizing.

When all active rheumatic manifestations have been dispelled, animal broths or cereals are adjuncts by stimulating appetite. They are not given for any food value, but as appetizers.

Having secured a clean tongue, all phases of rheumatism vanish with milk as the only food for a proper period; then in due succession, strained cereals, vegetable soups, cereal as a vegetable with butter and salt, baked potato, bread, green vegetables, fruit.

Failure in dietetic management in the past is attributable to excessive use of broths and other animal food; sugar and sweet desserts; the use of alcohol; withdrawal of fruits and cereals.

THE PREVENTION AND TREATMENT OF PUERPERAL INFECTION.

NORRIS gives the following directions in *American Medicine* of February 13, 1904:

Having made an early diagnosis of infection, the infected area, which is usually within the uterus, should be explored by the finger to determine further, if possible, whether we have to deal with putrid absorption from decomposing débris or the smooth endometrium of septic infection. If our cases always presented the striking contrast and the entire uterine cavity could be easily palpated, as described by some authors, it would at once settle the question of curetting the uterus. While it is true that the endome-

trium is often smooth and the uterus empty in septic endometritis, and the microörganisms have penetrated the tissues beyond the reach of douche or curette, in very many cases—indeed, in the majority—such can only be determined by examination under ether (even then with great difficulty), for in most cases there will be found at the placental site and elsewhere roughened areas which will often leave one in doubt. The reaction that has appeared against the curette is certainly beneficial, since we have learned that every patient with child-bed sepsis cannot thus be cured, and that many are really made worse. The dangers of perforating the womb, of carrying infection into the uterus through ignorant and faulty technique, of opening new avenues for absorption of toxic agents already present in the uterine or vaginal canal, of destroying the lymph barriers erected by nature to cut off lymphatic or circulatory absorption—all these real dangers should not deter us from utilizing a valuable means of treatment at the right time and in the right manner in the right cases.

The appropriate cases are those in which the uterus contains débris, often so closely adherent to the uterine wall that it is almost impossible to understand how such removal can be efficient with the finger, as is insisted upon by some able writers. The finger should try to locate the areas to be curetted, and in the author's experience the best results have followed the use of a sharp curette. Where the endometrium is smooth, of course there is no need for scraping. The case has yet to be seen of puerperal endometritis after labor at term that shows the continuously smooth uterine cavity sometimes described by those who have no use whatever for the curette in puerperal sepsis. The danger of destroying nature's lymph barriers has been overestimated. This protecting zone is present especially in sapremia, the very class of cases to which the curette is applicable and in which it can do the least harm. The curette should be used by the skilled and experienced hand. In these cases curettage is not a minor operation, and demands far greater surgical skill than the formal plastic operations of the gynecologist. The third condition for its successful use is that it should be used at the earliest possible moment after the diagnosis of infection has been made and after exploring the uterine cavity with the finger as thoroughly as possible.

Following curettage, the question of the douche is also under discussion at the present time. For putrid endometritis a disinfecting douche is indicated. The patient must not be poisoned, and strong antiseptics that aim to destroy virulent microörganisms, which, as a matter of fact, in the septic variety, have passed into the tissues beyond the reach of the douche, are not only useless, but dangerous. Weak solutions of lysol (one per cent) or creolin (two per cent) are sufficient to combat putrefaction, and can be used with safety. A gauze drain is then inserted to the fundus and removed in twenty-four hours. When, as rarely happens, we find the uterus empty, neither curette nor douche is indicated. When indicated, the operation to achieve the best results must be done early and thoroughly, and should almost never be repeated. Repeated douching will be required very rarely, and only when an offensive discharge persists.

A SIMPLE AND PRACTICAL METHOD OF DESTROYING SNAKE VENOM IN THE BITTEN PART.

ROGERS gives the following directions in the *Lancet* for February, 1904, for a practical method of treating any kind of snake poisoning which promises to be of great value in all cases seen early, and which might be carried out by any intelligent person if a medical man was not at hand. He has shown that Calmette's serum is not strong enough to prove efficient against full doses of colubrine venoms, while it is very seldom at hand when wanted, and tends to lose its power in a hot climate. It is also useless for viper bites, while the methods of counteracting the physiological effects on the circulation of the latter would not be likely to succeed when very full doses have been injected. If, however, most of the poison could be destroyed locally at the seat of its injection before much of it had gained access to the circulation, then the above methods might prove efficient in dealing

with the comparatively small amount of venom already in the system. Many attempts have been made to find some substance which would destroy the poison at the seat of injection, the best known of which is permanganate of potassium, which Wynter Blyth first showed will rapidly destroy the power of cobra venom when mixed with it *in vitro*. But experiments by Brunton and Fayrer and others, in which strong solutions of this substance were injected at the seat of insertion of the poison, did not prove successful in averting the death of the animals. They have, however, recently suggested a more radical plan of using the salt—namely, first to place a ligature round the limb above the seat of inoculation of the venom, and then to make a small incision through the place of injection and to rub in pure crystals of the permanganate moistened with a little fluid, with a view to neutralize as much as possible of the venom before it has had time to be absorbed into the circulation. The author carried out a preliminary series of experiments to test this method of using the salt, with very promising results.

In the first place he set to work to find out if the permanganate will destroy other venoms than that of the cobra by mixing from ten to twenty lethal doses with a fraction of a cubic centimeter of a 10-per-cent solution of permanganate of potassium—enhydrina, bungarus fasciatus, rattlesnake, African puff-adder, and daboia venoms being tried. The mixtures were injected into animals after from five to ten minutes, with the result that none of them showed any symptoms of poisoning except one, which had received a very large dose of bungarus fasciatus venom mixed with less than its weight of the permanganate, and in this case the animal lived longer than a control with less than one-third of the dose, so that most of the venom had been destroyed locally in this instance. It is clear, then, that the salt will destroy *in vitro* nearly its own weight of every class of snake venom. Next, rabbits and cats were chloroformed and injected with several times a fatal dose of cobra or daboia venom, a ligature was applied after half a minute, five, or ten minutes, and the treatment described was carried out, the ligature being released immediately after its completion. In the case of the rabbits only very marked prolongation of life, as compared with the controls with the same doses, was obtained, owing to these animals being found to be much more susceptible to the venoms than cats, so that the doses injected into the rabbits were many times a lethal quantity.

In the case of the cats much more favorable results were obtained, only two out of twelve animals treated having died, one being the first case treated with cobra venom, while the other had received five times a fatal dose of daboia venom (a much larger dose than this snake could inject in the case of an adult man), and the ligature was not applied until after five minutes. On the other hand, recovery took place after ten lethal doses of cobra venom treated after half a minute, from five lethal doses after five minutes, and from three lethal doses after ten minutes; while with the daboia venom animals were saved from five lethal doses after half a minute, and from three lethal doses after five and ten minutes, respectively. He also found that even thirty seconds after the injection of the venoms there was a local extravasation of blood-stained serum present which clearly indicated the position of the poison, and the salt was rubbed in directly over this until the tissues were quite blackened. The amount of tissue thus destroyed was quite superficial, while the salt has antiseptic properties.

The author has in prospect an opportunity of carrying out further experiments on his return to India very shortly with fresh venoms, and to wait longer before ligaturing the limb, so as to ascertain the exact limits of the value of this method. The rapid local effusion just mentioned leads the writer to the belief that after the first few seconds this pouring out of lymph will very materially retard the rapidity of the absorption of the venoms, so that it is possible that even half an hour or more from the time of the bite a considerable proportion of the venom may still be unabsorbed at the site of its injection and so may still be destroyed by the treatment suggested; and it is obvious that if this can be done at any time before a fatal dose has entered the circulation life will be saved, and in any case the chances of

success with the other methods of treatment will be greatly enhanced.

That the absorption of a subcutaneous injection of snake venoms is very slowly completed is shown by the fact that one milligramme per kilogramme of cobra venom in a cat will kill in a few minutes when injected intravenously, yet the same dose takes from twenty-four to forty-eight hours to cause death when injected subcutaneously. When a very large dose, such as fifty times a lethal amount, is injected subcutaneously into a dog's tail and this member is cut off inside the seat of injection within a few seconds, the animal will still die, as shown by Fayrer years ago. The reason is that one fatal dose may be absorbed out of such a large quantity within a few seconds. In the case of man, however, such a relatively large dose can never be received, so that there is much longer time for action—how long can only be determined by further experiments on animals. Nevertheless, the results given us by the author he believes sufficient to warrant the use of his method in practice, especially as it is efficient against all kinds of snake venoms.

At the suggestion of Sir Lauder Brunton an instrument has been made consisting of a lancet covered with a sheath, in a small space at the base of which permanganate crystals are kept, the whole being but one and a half inches in length, so that it can easily be carried in a corner of the waistcoat pocket always ready for instant use. This will shortly be sold at a very low figure, so as to bring it within the reach of even the poorest classes in India and elsewhere.

APPARENT DEATH OF THE NEW-BORN.

ZANGEMEISTER (*Centralblatt für Gynäkologie,* Sept. 26, 1903) reports excellent results from the administration of oxygen through a catheter introduced into the larynx in cases of apparent death of the new-born. Oxygen is conducted from its containing cylinder into the rubber reservoir which is attached to the tracheal catheter. The lungs are filled by gentle pressure on the rubber reservoir, and then emptied by pressure on the chest. The tracheal catheter should be sufficiently small to permit of the escape of air between it and the tracheal walls. All the manipulations can be performed while the child is in a hot bath. By this method the author has never observed the development of pulmonary emphysema such as sometimes occurs after artificial respiration by mouth-to-mouth insufflation.

THE SPLINT TREATMENT OF SCIATICA.

CLARKE (quoted in the *Medical Record,* Oct. 21, 1903) extols the virtues of the Weir Mitchell plan of immobilization of the limb by a long splint. He has employed this device in twelve cases. Eleven were men, their average age being forty-nine years. The average duration before coming under observation was nearly six months. The average duration of treatment was five and one-half weeks. Ten cases were cured. One had a severe relapse some weeks later, but was cured by a second course of treatment. One was not relieved, but he was a restless patient and would not keep the splint on. The restraint is very irksome, and a hypodermic of morphine is often required the first night or two. The splint must be watched carefully, and readjustment may be necessary, especially if pain appears in the foot, over the outer malleolus, or in the ankle.

BRAIN TUMOR—METHOD OF RELIEVING PAIN.

BROWNING (quoted in the *Journal of the American Medical Association,* Nov. 21, 1903) claims that relief of pain in cases of brain tumor can be secured by relieving intracranial blood-pressure by the administration of such depressants as aconitia, veratrum, or gelsemium, in doses sufficient to control the pulse. They cannot in every case and at all times stop pain, but they relieve it even though the condition has existed for many months. The classes of cases that they are likely to relieve are those where there is more or less general increase of the intracranial pressure, which occurs most typically in interstitial growths. The pain is less intense, and more continuous. They may be still more useful in cases where there is paroxysmal augmentation of the arterial pressure with terrific pain seizures. Where the pain is the result of the direct

implication or stretching of the external structures, as the meninges and outgoing nerves, there is neuralgia and localized pain, and the good to be derived from depressants may be only proportionate to the amount in which the pressure is the factor. The tendency to brain hemorrhage which exists in some of these cases is favorably influenced. In cancer cases the use of depressants may have a diagnostic value.

ADRENALIN IN THE TREATMENT OF SURGICAL SHOCK.

MARTIN and PENNINGTON (*American Medicine,* Nov. 21, 1903) report six cases in which adrenalin chloride was used to combat symptoms of impending death. In two of the cases the effect of the adrenalin was immediate and unmistakable. In both it seemed life-saving, but the clinical evidences presented by the writers as to its effect must be regarded as inconclusive on all points. It was not employed on a single case in which there was a fair prospect of the preservation of life without its use; hence the unbroken mortality in the six cases cannot be counted against it.

One case of typhoid perforation apparently speaks strongly in its favor, since the authors have never seen a patient so entirely and profoundly collapsed make an operative recovery. This one case, however, must be corroborated by many others before confidence can be placed in the drug.

Laboratory experiments apparently show that adrenalin, by intravenous injection, is the most powerful cardiac and vasomotor stimulant ever presented to the profession. Its value is still further enhanced by the fact that it stimulates the respiratory center and increases general metabolism and body temperature.

The toxic dose for man is not known, but it is probably several hundred times greater than that in which the drug is ordinarily given. Because of the rapidity with which it undergoes alteration in the body it is inert so far as its systemic effect is concerned, when given either by the mouth or by the rectum. Because of the tendency to abscess formation at the seat of injection, incident to the ischemia caused by strong solution, the dilution should be at least 1:10,000 when the drug is given hypoderimcally. It does not seem probable that any effect can be expected when thus administered from less than 2 cubic centimeters of the 1:1000 solution. Apparently it is safe to give an initial dose of 10 cubic centimeters of the strong solution in 90 cubic centimeters of normal salt.

In cases of urgency, adrenalin chloride should be given intravenously, in a dilution of 1:10,000. The injection should be slow, thus prolonging the effect, and should be pushed up to 100 cubic centimeters of the strong solution, or until the heart clearly and unmistakably responds to its influence.

There is yet no convincing clinical proof to the effect that the drug is as efficacious when used on man as laboratory experiments would indicate. Because of its power of lessening the bacteriolytic power of the blood of animals, its use in cases of infection in the human should be practiced with great caution, until a wider experience has proved its safety or danger in these cases.

SUTURES—THE VALUE OF THE BURIED ANIMAL SUTURE IN ASEPTIC SURGERY.

With the emphasis of earnest conviction, MARCY (*Maritime Medical News,* November, 1903) recommends that every surgeon become thoroughly familiar with methods of wound closure with buried absorbable sutures. The material for such sutures is preferably tendon.

All aseptic wounds closed with buried aseptic tendon sutures will remain aseptic, and in well vitalized structures will be followed by primary union. Thus there is obviated all danger of subsequent infection, expensive and troublesome dressings, all necessity for removing the sutures later, and all cause for a lengthened period of convalescence. As a matter of fact, operations hitherto impossible have been rendered feasible by the use of buried absorbable sutures, such as the reconstruction of the pelvic structures, and the closing of rents in the peritoneum.

Marcy, now in his 500th series of hernia in the male, obtains with this suture material ninety per cent of cures. The reformed structures, he believes, may be greatly strengthened by the rejoining of the sundered tissues with lines of buried

sutures, as contrasted by a single layer of interrupted sutures—for example, the closure of the abdominal wall in laparotomy. Here, in the closure of the wound by a single line of interrupted sutures, about ten per cent of the cases result in hernia at the line of the incision. When closed in layers the compound structures are rejoined, and in primary union hernia should be altogether avoided. In over 1500 laparotomies of this character Marcy has had but a single subsequent hernia.

HERNIA—ONE THOUSAND ABDOMINAL CLOSURES FOR HERNIA.

As it is said that probably about ten per cent of abdominal sections closed by prevailing methods result in subsequent hernias, BALDWIN'S history (*Annals of Surgery,* November, 1903) of one thousand abdominal closures by a new method without a known hernia may prove enlightening.

In closing an ordinary abdominal incision made in the median line, the bellies of both recti muscles are exposed so that they will be brought into direct apposition when the sutures are tightened. The muscular tissue serves as an excellent buffer and keeps the abdominal contents from direct impact against the line of closure of the fascia. Through-and-through silkworm-gut is now introduced from within out, in such a manner that the needle catches merely an edge of the peritoneum. It is then passed well back through the muscle and fascia and out at a suitable distance from the skin margin.

The fascia is next brought together by an over-and-over stitch, using a doubled thread either of coarse silk or cotton. This is introduced into the needle so as to give a loop about two feet long. To the end of this loop is attached the wire, which is sharply bent upon itself, so as to be readily drawn through the tissues, the loop being used merely as a guide for the easier introduction of the wire. The over-and-over stitch is so passed as to take in about a quarter of an inch of the edge of the fascia, and includes no other tissue. It is introduced very loosely, so that each turn can be caught later with the finger. As it reaches the end of the incision it is passed from within out through fat and skin so as to make its exit an inch or more above the end of the incision. By means of this guide thread the wire is introduced loosely so that it lies in the wound as a helix, the end of the wire appearing through the skin as the last of the thread is withdrawn. Care should be taken to see that the fascia, which is thus brought together, has been carefully cleaned of fat. This cleaning is best done when making the primary incision and before incising the fascia. By holding the belly of the knife at a suitable angle the fat is easily separated for one-half inch on each side.

A handled needle with an eye at the point is then introduced through the skin and fat about an inch from the other end of the incision, and brought out just above the fascia so as to engage the other end of the wire, which is then withdrawn. This needle has been previously passed through two pads about an inch square and made of six or eight thicknesses of gauze. Before withdrawing the wire from the needle, one of these gauze pads is slipped down over the wire so as to rest next to the skin. The other end of the wire is then threaded through the needle, and the other gauze pad is placed in position, and a perforated shot placed outside of each pad.

The incision is then carefully dried, if there has been any oozing, and while an assistant draws up the ends of the silkworm-gut, so as to secure apposition of the peritoneum throughout, the wire helix is drawn straight by traction with forceps on each end, care being taken to see that no kinks are formed during this process. The wire should be drawn back and forth once or twice so as to be sure there are no kinks. The perforated shot are now pushed down against the pads and clamped.

The fascia is thus held in absolute contact, and the operator can see that not a bit of fat or muscular tissue intervenes. The silkworm-gut is then tied in the usual way, care being taken that it is not drawn too tight, as this is probably the most common cause of stitch abscesses. The use of the silkworm-gut precludes any possibility of dead spaces; all the tissues are brought into absolute contact, layer to layer.

In cases in which the recti muscles are widely separated no attempt is usually

made to bring them together, but extra care is taken to secure apposition of the fascia.

The line of incision is supported by a snug binder of canton flannel, made in the form of a many-tailed bandage. The bandage is so made that each strip overlaps the one below by about one-half its width, and they are stitched together up and down at the back by two lines of stitches several inches apart, so that there is little tendency for the binder to be thrown into folds.

If the case does well the dressings are removed the tenth day. If a stitch abscess occurs the affected stitch is at once withdrawn, and if it seems best, one or two on each side; but the wire is not disturbed until the usual time. The bandage is worn continuously for three weeks, day and night for one month, except as it is removed for bathing, and during the day for still another month; it is then discarded.

In an abdominal wall enormously thickened from a deposit of fat this method cannot be used, since the pressure of silkworm-gut will be too great.

NEVUS—SURGICAL TREATMENT.

BECK (*Journal of the American Medical Association,* Dec. 26, 1903) transforms the vascular bulk of a nevus into connective tissue by subcutaneous sutures introduced at several sittings. A thread of catgut is passed in a zigzag manner, first below the skin, then underneath the base of the tumor; then, again, underneath the skin, underneath the tumor, etc., until the tumor mass is included in this continuous suture. The suture is drawn tight and closed at the point of entrance of the needle.

In this manner the circulation is shut off within the tumor, but no gangrene follows, inasmuch as some blood can still reach the parts not included in the suture. The mass of the tumor appears much smaller after the end of a week, and the epidermis over the tumor becomes soft and elastic and grows.

This procedure is repeated until the tumor has been diminished to the smallest possible nodule of connective tissue, and the healthy skin enlarged to the utmost. Then the hard connective tissue masses are excised and the borders united in fine linear union.

This treatment is applicable to all varieties of hemangioma, but in the arterial and mixed varieties it is necessary to ligate the largest afferent vessels. Only in this way is it possible to check the often rapid growth of these tumors.

DYSMENORRHEA—SURGICAL TREATMENT.

Dysmenorrhea, according to PARKE (*Medical News,* December 19, 1903), may be divided into two classes, one curable by dilatation and curettage, the other not, the symptomatology indicating the type for which operative measures promise relief.

The symptom of true obstructive dysmenorrhea is pain with the cramp-like character of labor pains. It may follow an operation or disclose the presence of new growth. The operative treatment of this condition consists, of course, in the removal of the cause. If it be a fibroid, this should be removed if feasible, the cervix amputated if necessary, or a hysterectomy done. When obstruction is due to cancer the disease is usually so far advanced as to be incapable of complete removal, and then the only satisfaction is scraping out the canal. If cicatricial contraction following operation be the cause, dilatation should be done, and curettage is in order, for the endometrium is always diseased under these circumstances.

The small anteflexed uteri are usually under-developed. Dilatation sometimes benefits these cases, but they are not promising ones for cure by this means.

Membranous dysmenorrhea is attended by pain not unlike labor pains, which comes on with the beginning of the menstrual period and continues with increasing severity until the membrane is expelled. It is in this particular an obstructive dysmenorrhea, and its surgical treatment should consist in a wide dilatation, curettage, and the application of pure carbolic acid to the endometrium. This expedient affords relief from the severe pain for a time, and occasionally cures the disease.

Spasmodic dysmenorrhea is characterized by pain, which is cramp-like, and often of great severity, causing the victim

to toss about, sweat, and sometimes vomit or even faint. It is paroxysmal and usually of short duration, but rarely may be prolonged sufficiently to lose this distinctive sign. When severe, it is not localized to the uterus, but fills the whole pelvic zone, and may or may not come and go with the menstrual flow. Recumbent posture does not favorably affect the pain, and patients often express themselves as relieved by alcohol. A fairly large percentage of this class of patients are sterile. Physical examination of these cases, after some years of suffering, will show a somewhat hypertrophied uterus.

The simple operation of dilatation and curettage finds its greatest field for usefulness in this type of cases.

Congestive dysmenorrhea is marked by pain of quite a different character from the preceding. Here it is more or less constant and precedes the flow by some days or a week. It may be simply an exaggeration of the aching that so commonly accompanies menstruation, or be severe enough to confine the patient to bed. It is worse at the beginning and improves toward the end of menstruation. It does not cause tossing about, fainting, or vomiting, and is improved by the recumbent posture. The seat of pain is the pelvic area, but it is so often localized to the region of the left ovary, or both ovaries, as to give rise to the name of ovarian dysmenorrhea. Congestive dysmenorrheas are often dependent on pathological changes in the uterus itself or its appendages, such as chronic metritis or endometritis, retroflexion, fibroid tumors and inflammation, or prolapse of the ovaries and tubes. Congestive dysmenorrheas pure and simple do not require surgical treatment for their cure; but when they are secondary to the conditions above mentioned, some operative measure affords the only substantial relief in our hands. Thus a retroflexed uterus should be not only dilated and curetted, but the organ should be restored to the normal position by an appropriate operation such as shortening the round ligaments or hysterorrhaphy. When diseased appendages are the cause of the pain, its cure may depend on their removal. If fibroid tumors are present, their removal is to be advised, although dilatation and curettage will sometimes greatly ameliorate the condition, and should be tried where consent for the greater operation cannot be obtained.

The above mentioned kinds of dysmenorrhea are sometimes blended, the symptoms of one class predominating over those of the others. Thus there may be a dysmenorrhea partly congestive and partly neuralgic, or spasmodic and congestive.

Ectopic pregnancy is a dysmenorrhea or a condition associated with dysmenorrhea. A characteristic history is as follows: The patient misses one or more periods and may suffer from slight pelvic pain. Suddenly she is seized with severe pelvic pain and metrorrhagia, with perhaps the discharge of membranes. This sometimes continues for days or even weeks, if the patient survives. She thinks it is simply irregular menstruation or perhaps a miscarriage; and not rarely the true nature of the case is overlooked by the physician who does not make the necessary examination. The operative treatment consists in the removal of that appendage which is the seat of the pregnancy.

One should never dilate and curette a uterus whose appendages are known to be diseased, unless at the same time an appropriate operation is done upon the appendages; that is, when a physical examination shows the presence of masses on either side of the uterus or adhesions of that organ, or of the tubes and ovaries.

The operation should be conducted with the same antiseptic care as operations on other parts of the body. After introducing a speculum to retract the perineum, seize the anterior lip of the cervix with a volsella forceps, to draw down the organ and hold it firmly, while the smaller sized Goodell or Walthen dilators are introduced into the uterine canal (using previously, if necessary, a uterine sound to find the direction of the canal). Stretch the canal sufficiently to introduce the larger sized dilator. Continue with this instrument to stretch the canal, either rapidly and in all directions, or more slowly in one direction (Goodell's method), until in a nulliparous woman the blades are three-quarters of an inch apart, or in a parous woman they are as much as an inch or an inch and a quarter apart. The dilated canal will now admit a sharp curette without undue force. It should be grasped firmly by the thumb and fingers so that the amount of force

the bowel. (3) Gall-stones ulcerating into the colon rarely cause obstruction, being usually passed readily per rectum. (4) When gall-stones smaller than the lumen of the intestine cause obstruction it is probably because of the so-called decubital irritation and angulation described by Pilcher. (5) Frequently the site of the bowel obstruction can be located approximately by the study of certain symptoms, such as the presence or absence of meteorism and the presence or absence of bile in the feces or vomitus. (6) The lower portion of the small intestine is frequently the site of obstruction caused by lodgment of migrating gall-stones; obstruction of the duodenum below the entrance of the bile-duct is very rare, and obstruction between that point and the pylorus most exceedingly rare, the author's case being the only one on record in which obstruction occurred at this level.

THE TREATMENT OF ENLARGED PROSTATE.

MOULLIN (*Lancet,* Dec. 5, 1903) restricts the use of the catheter in the treatment of prostatic hypertrophy to those cases in which the patient manages to lead a comfortable existence by passing a catheter for himself once, or at the utmost twice, in the twenty-four hours. In case of doubt the catheter should be given a trial first, but if the frequency with which it has to be used increases; if the main features of the case are not so much vesical inability or mechanical obstruction as irritability of the bladder; if the amount of residual urine grows larger; if there is a tendency to cystitis; if attacks of congestion are of frequent occurrence; if there is a valve-like outgrowth at the orifice of the bladder or a conspicuous thickening in the posterior median wall of the urethra; if there is any difficulty in the passage of the catheter; if the introduction of the instrument is liable to cause bleeding; if there is a tendency to the formation of calculi in the postprostatic pouch, or if the specific gravity of the urine steadily falls, it is clear that the use of the catheter does not fulfil the necessary conditions. The sooner this is recognized and some other method of treatment adopted the better for the patient.

In every case in which congestion at the neck of the bladder is a prominent feature constitutional measures, such as rest in bed, hot baths, dieting, and free purgation, must never be omitted. When the congestion is chiefly passive, they are often sufficient of themselves to give relief, and though they are not so beneficial when the congestion depends upon other conditions they are still of great value.

In the cases attended by slight enlargement and much congestion, characterized by great irritability and urgent micturition as prominent features, the Bottini operation is serviceable. The venous plexuses in the submucous and mucous layers and the nerves, which in this region are so excessively sensitive, are divided; and three linear cicatrices are left which contract and distinctly lessen the tendency to subsequent congestion.

Division of the vasa, or rather of the nerves which surround and accompany them, checks to some extent the liability of the prostate to congestive attacks, and so far as these attacks are dependent upon stimuli originating from the testes, it is of some benefit.

Removal of the enlarged gland can be effected either by inducing atrophy by means of some operation upon the testes or the spermatic cord, or by operating upon the enlargement itself.

When the bladder is very small and rigid from repeated attacks of cystitis, and the prostate is very hard and dense, perineal prostatectomy is indicated. Under all other conditions the prostate is best attacked by the suprapubic route. If the operation is to prove successful it resolves itself into the removal of the whole vesical mass, the exploration being then extended down the whole length of the prostatic urethra.

PULMONARY GANGRENE—SURGERY.

Led by his experience in pulmonary gangrene, MCARTHUR (*International Journal of Surgery,* December, 1903) discusses the surgical aspects of this affection. He finds that by medical treatment 80 per cent die, but only 29 per cent if the treatment be surgical.

Great care should be used in selection of cases for operation, but when the gangrene is localized and single the most desperate cases should be given a chance, as they frequently recover with drainage.

The *x*-ray is only a valuable aid in

localization. Pulmonary gangrene, of course, gives a picture in its first week or ten days different from that of the succeeding weeks.

When the site of the affection is definitely located the mortality, according to Tuffier, is 29 per cent; when incorrectly located, 60 per cent.

Deeply located gangrenes of the left chest may give *x*-ray shadows confused easily with the cardiac and vessel outlines, hence radiography is of more assistance in the right chest, where, fortunately, most gangrenes occur.

In a circumscribed form of the affection only may surgery hope to be of assistance, hence every effort should be made to determine the extent and character of the lesion with reference to whether there be more than one focus (which is said by Murphy to occur in 15 per cent of cases). If the history furnishes a source for a probable septic embolus, or the inspiration of food products, or a preceding one-sided lobar pneumonia, or a trauma (gunshot, stab), the lesion is more likely to be single than if secondary to a putrid bronchiectasis or lobular pneumonia.

For successful surgery, according to Lejars, the focus must be absolutely circumscribed or confined to an accessible zone, and the condition of the opposite lung must not be irremediable.

The physical signs, as observed by several operators, do not accurately indicate the location of the gangrene, probably because of the better propagation of the sounds along the large air-passages. Physical signs during the early stages are those of infiltration; during the latter stages, those of a cavity.

If the focus can be easily reached it should be drained. In the early operation free incision of the gangrenous mass with no attempt at excision should be made, the aim being to provide prompt exit to septic matter while awaiting the line of demarcation.

The chief aid in diagnosis is by all odds the sputum, never to be forgotten nor confounded with any other expectoration, since it has a most intolerable cadaveric gangrenous odor, worse than and different from any other human product of putrefactive processes. It should be remembered, however, that some cases have been recorded in which there was no communication with the bronchus, hence there was absence of the most characteristic sign of gangrene. Emphasis has been placed on the effect of change of posture producing cough from emptying of a cavity into the bronchus.

The diagnosis and location being made, it remains to choose the method of procedure, which consists in opening the chest wall, finding or making pleural adhesions, and opening the gangrenous area. It is probably advantageous to turn a flap, including three or four ribs, toward the middle line, using the cartilages as the hinge. In the search for pleural adhesions, if the exploring needle be employed to determine the presence or absence of motion between pleura and lung, this instrument should be inserted not more than a centimeter. If there be adhesions there will be no rocking of the needle such as would obtain if its shaft were fixed in the thoracic pleura, while its point was embedded in moving lung. Occasionally this motion may be partial and deceptive. If adhesions are absent, they may be induced by circular suture.

The gangrenous cavity can best be opened by the Paquelin point, as the walls of the opening thus made are protected by the eschar against extension of the gangrene. Entrance to the cavity will become immediately manifest by the smoke of the Paquelin being inhaled and exhaled with each respiration, as well as by the escape of putrid contents. The opening should be large enough to provide free drainage, and even packing of the cavity. Opening the pleural cavity may result in a fatal pleural infection, hence when this complication occurs immediate drainage of the pleural sac has been suggested.

Prior to the act of opening the gangrenous area fresh cut surfaces of the chest wound should be covered with iodoform gauze, which is to remain there until the second dressing, to protect the wound from infection from the discharges. Choice as to drainage with tubes or with gauze should depend upon the tendency to hemorrhage.

Irrigation is in most cases dangerous, always provoking coughing, and is practicable only under intelligent supervision.

As to the closure of the wound, it cannot be too strongly urged that provisional (or no) stitches be put in, the chest wound being closed only when all danger of local infection or burrowing is past.

It appears anatomically possible to separate the pleura from the chest wall, but this is tedious, difficult, and often futile (due to puncture), and therefore not much valuable time should be lost in such efforts. It is likewise apparent that circular suture combined with gauze pressure packing for forty-eight hours is the best means of producing adhesions.

CEREBRAL TUMOR—SURGICAL TREATMENT.

With a view to determining whether or not the results of recent operations on cerebral tumors justify a less conservative attitude toward their operative treatment, WOOLSEY (*American Journal of the Medical Sciences,* December, 1903) collected statistics of 101 cases of cerebral tumors which have been operated upon and reported during the past five years.

In twelve of the cases the tumor was localized in the frontal region, four of which, however, belonged to the motor area. The remaining eight cases were situated in the prefrontal region and presented a characteristic group of diagnostic symptoms psychic in all, and of moral perversion in two. Though Bruns states that disturbance of equilibrium characterizes tumors in both the frontal lobe and the cerebellum, a distinct ataxic gait was present in only one. Three presented local tenderness on pressure or percussion; one, a visible external swelling; two, exophthalmos; and two, a lowered and turned-out eye.

The series of 101 cases includes five tumors in the parietal region, removable by operation, and was localized by symptoms of sensory disturbance. In four of the cases these symptoms included astereognosis, which was also present in the case of some tumors of the motor area, where the region behind it was invaded. In four of the five parietal tumors there were also motor symptoms, usually of moderate development and late appearance, and due to the forward extension of the tumor or its pressure in the course of its growth. Three of the cases also presented ataxia.

Three of the 101 cases were diagnosed and found in the occipital lobe. In all three there was homonymous hemianopsia, which alone, or associated with appearances of optic irritation or hallucination, or soul-blindness, is characteristic of tumor in the occipital lobe. Schuster states that hallucinations and delirium are particularly frequent in occipital lobe tumors. In one case there was also an external tumor to assist in the localization.

In arriving at a diagnosis there must be considered (1) general or pressure symptoms; (2) focal or localizing symptoms. Of the pressure symptoms, headache, choked disk, vomiting, and vertigo are the most important.

Persistent headache is the most constant symptom. Its absence was noted in only eleven of the above 101 cases. It is of slight localizing value since it was confined to the tumor side in only ten cases. In tumors of the frontal lobe, headache, if localized, may be frontal or occipital.

Choked disk is more regularly present and more often pronounced and deeper in a large or rapidly growing tumor, and more often absent in a cystic tumor. Among 50 cases, under forty years of age, in which choked disk was mentioned, it was absent in 26 per cent, as against 44 per cent in cases over forty years of age.

Vomiting was present in 33.3 per cent and vertigo in 22.2 per cent of the cases. Other pressure symptoms noted were slow pulse, deepened respirations, psychic unrest, and general convulsions, but the decisive symptom was choked disk.

Localization of the tumor was made by a study of functional disturbances, by percussion or pressure, and by means of the *x*-ray. Local tenderness on pressure or percussion over the tumor was noted in 21 cases. Two of these were subcortical, and 19 cortical or surface growths. In two cases increased dulness on percussion was noted, and in one case it was the only marked localizing sign. In two cases there was tympanitic resonance, in one of which this symptom and local tenderness were the principal localizing signs. In six cases there were external swellings, three of which were tender on pressure. In five cases in which the *x*-ray was employed, it was negative in one case of glioma of the motor area, while in three cases of sarcomata and one of gumma it was positive.

Of the 101 cases, 12 of the patients died within twenty-four hours, and 26 within three weeks after operation. The mortality was 22.7 per cent in the cases in which an exact localization was made,

and 46 per cent among those inexactly localized. Six of the patients died between three weeks and three months, nine between three months and one year, and three between one and two years, giving a mortality of 43.5 per cent within two years.

In operating for brain tumor, the author raises an osteoplastic flap after cutting through the skull with Doyen's electrical circular saw. Hemorrhage from the scalp is controlled by elastic tubing, drawn tightly about the head around the eyebrows and ears, or when this fails, by overlapping interrupted sutures over the face of the flap, and upon it if necessary. Continued oozing from the cut surface of the bone is controlled by pressure with or without the use of Horsely's powdered wax pressed into the diploe. After turning back the flap of dura and incising the pia around the tumor, the latter, unless disseminated, or unencapsulated, is best shelled out with the finger. Bleeding from the cavity left by the tumor should be controlled as far as possible by ligature, or gentle packing. The author always employs drainage during the first forty-eight hours. Suture of the pericranium and scalp completes the operation.

Absolute cure, or *restitutio in integrum*, is rarely, if ever, to be expected, on account of the necessary damage to the brain substances by the tumor, and the operation of enucleating it. In 16 out of the 101 cases, however, the symptomatic result was so good as to be considered a cure, and in 41 cases the result has been improvement, often so marked as to be nearly a cure.

The author emphasizes the following conclusions: (1) The sphere of operation for cerebral tumors may be, and has been, extended to the prefrontal, parietal, and occipital regions in addition to the motor areas. (2) The prognosis, both immediate and remote, is as good as or even better than in operations for malignant growths in some other locations. (3) Prognosis has improved, with the improvements of localization and operative technique, and with the limitation of the radical operation to cases accurately localized. (4) The palliative operation is strongly indicated to relieve symptoms where localization cannot be accurately made or the tumor cannot be removed. This operation consists of removing the bone from the flap in order to relieve the increased intracranial pressure and the symptoms due to it, and the introduction of a thin plate of celluloid to prevent union of the scalp and dura. The exploratory operation is contraindicated. (5) Practically all circumscribed growths of moderate size are suitable for operation. (6) The osteoplastic method should be employed, and the most rapid and perfect technique adopted which the circumstances will allow.

THE TREATMENT OF TRIFACIAL NEURALGIA.

FRAZIER (*American Journal of the Medical Sciences,* December, 1903) states that probably twenty per cent of cases of trifacial neuralgia are amenable to treatment other than operative.

Non-operative treatment consists, first, in the removal of all predisposing causes, such as malaria, anemia, exhaustion, and peripheral ulceration, such as carious teeth, or antral disease; secondly, in the administration of drugs, of which the most efficacious, especially so in the exhausted or anemic cases, is strychnine. The drug must be administered in heroic doses, and the patient must be kept under close observation, and should be confined to bed. The strychnine is administered hypodermically, once daily, in gradually ascending doses, until at the expiration of two weeks the physiological limit is reached, after which it should not be given oftener than once on alternate days. After the pain has entirely disappeared the drug should be withdrawn gradually. As adjuvants to the treatment, rest is of the utmost importance, and iodide of potash and tincture of the chloride of iron are more or less helpful. If at the expiration of a year, or sooner, if the attacks are very frequent and severe and uncontrollable, under medical treatment, operative treatment should be recommended as the only hope of relief. In the cases in which the pain is restricted to the distribution either of the inferior dental or the infra-orbital branch of the trifacial nerve, the peripheral operation should be chosen, for the following reasons: (1) Because in a certain number of cases it will be followed by absolute recovery; (2) because in a still larger percentage of cases it will be followed at least by a remission for vary-

ing periods of time; and (3) because it is unattended with the risks that accompany the intracranial operation.

An extensive section of the nerve should be removed in order to reduce to a minimum the danger of regeneration. In the cases in which the resected nerve occupies a bony canal, regeneration may be prevented by plugging the canal with some substance, such as silver foil, which the nerve fibers cannot penetrate. When recurrence follows one or more peripheral operations, or when the distribution of the pain is referred to two or more of the branches of the trigeminus, some one of the central operations must be performed. Division of the sensory root possesses the following advantages over other forms of central operations: (1) It should be attended with lower mortality. (2) The serious and troublesome difficulties experienced in the attempts to extract the ganglion are obviated. (3) Its execution is comparatively simple. (4) The integrity of the adjacent structures, particularly the cavernous sinus and sixth nerve, is not endangered.

Animal experiments show that the sensory root does not tend to regenerate.

The operation is performed by the temporal route, a horseshoe-shaped, musculocutaneous flap is reflected, the zygoma is chiseled through at either extremity, and a section of the skull three to four inches in diameter is removed with gouge and rongeur forceps. The dura is cautiously separated from the base of the skull until one of three landmarks appear: the foramen spinosa (through which emerges the middle meningeal artery, which must be carefully avoided or deliberately ligated); the foramen ovale (through which the third branch makes its exit); and the foramen rotundum (through which the second division finds its way out of the skull). During this stage of the operation hemorrhage is severe, but can be controlled by pressure. An incision is now made through the dura propria, between the foramen rotundum and the foramen ovale, and the dura is separated from the upper and posterior surface of the ganglion, thus exposing the sensory root, which is picked up on a short, blunt hook. A small section of the nerve is then removed with blunt, curved scissors. One or two strands of gauze are introduced to provide means of drainage, and the musculocutaneous flap is replaced and sutured.

The author has operated upon three cases by this method, and there has been no recurrence of pain.

TUBERCULOSIS OF THE KNEE-JOINT—OPERATIVE TREATMENT.

MONSARRAT (*Lancet*, Nov. 7, 1903) has operated upon eleven cases of tuberculous disease of the knee-joint during the past three years. In three of the cases there was involvement of the synovial membrane alone; in two cases, of the synovial membrane, capsule, and ligaments; in one case, synovial membrane with ulceration of the cartilage; in two cases, femoral epiphysis alone; in two cases, femur, tibia, capsule, and synovial membrane; and in one case the tibia, patella, synovial membrane, and ulceration of the femoral cartilage and capsule. In six cases the disease was primarily synovial, and in five cases primarily osseous. In three of the cases erasion was required a second time; in one case the limb had to be amputated because of septic infection. The after-treatment was directed toward securing ankylosis of the joint. In five cases there was no flexion; in three others it occurred, but was corrected. All of the patients recovered, and at the present time present no evidences of local tubercular disease.

The author employs a method of exposing the joint which combines the advantage of giving free access to every part and of leaving the extensors practically intact. A long median incision is made commencing half an inch below the tubercle of the tibia and extending upward about three inches above the upper border of the patella. The ligamentum patellæ, the periosteum of the patella, and the extensor aponeurosis are divided exactly in the middle line by an incision the full length of the skin incision. The patella is sawn through in the same direction, and the joint is thus opened. The upper part of the incision is then deepened with scissors, so that the whole of the suprapatella pouch and the quadriceps is split well above it. Perfect access to the upper and lateral limits of the synovial membrane is thus obtained. The joint is then flexed, and at the same time each half of the bisected extensor patella

and ligament is retracted laterally, until the halves of the patella lie outside of the line of the femoral condyles; the tibial surface and the posterior synovial reflexion are thus exposed and dealt with as may be required. When all disease has been removed, the joint is again extended, and the halves of the patella fall together, and may be fixed with a single wire suture. Continuous sutures above and below the patella bring together the halves of the quadriceps and the ligament.

The author thus summarizes the indications for operative interference: (1) Cases of tuberculous foci in the neighborhood of the lower epiphysis of the femur should be operated on as soon as the diagnosis is established. (2) Cases of joint disease by extension from the femur should be operated upon as soon as possible, if this extension is recent, and if not recent, then when the disease does not definitely retrograde after about two months' fixation of the joint. (3) Cases of primary synovial disease should be operated on if after about three months of rest no distinct improvement has taken place.

GENERAL PERITONITIS COMPLICATING SCARLET FEVER.

General peritonitis due to streptococcus infection as a complication of scarlet fever is extremely rare. McCollom (*Boston Medical and Surgical Journal,* Dec. 10, 1903) states that in a clinical experience of over 8000 cases of scarlet fever he has observed a limited number of patients whose symptoms would cause one to think of the possible occurrence of this complication, but the speedy subsidence of all symptoms and the ultimate recovery of the patient would seem to prove that peritonitis could not have existed.

In two instances, however, out of the 8000 cases peritonitis did actually occur. In these cases the attacks of scarlet fever were not specially severe, and there was no cause for anxiety until the occurrence of the abdominal symptoms. The two cases presented in common a series of complications, a late development of the peritoneal symptoms, and an absence of local purulent foci. The family history in one case which recovered suggested a tubercular peritonitis, but the culture from the pus showed streptococcus. The child's temperature began to rise and fluctuate several days before abdominal symptoms were noted. The peritoneal infection was gradual and comparatively painless in its onset. In the other case the onset was acute, suggesting sudden intestinal obstruction and rendering an operation imperative, in spite of the almost complete suppression of urine.

If the signs of peritoneal infection are slight in degree and extent, palliative measures alone, such as enemata, turpentine stupes, and rectal feeding, will suffice. If, however, the pulse steadily rises, and pain, tenderness, and spasm increase, the indication for drainage is imperative. The condition of the kidneys is the most definite contraindication to operation, and whenever possible cocaine should be substituted for ether. The operation should consist of a rapid celiotomy, thorough irrigation with hot salt solution, and drainage. Unless there are definite local symptoms, the incision should be in the middle line. To favor drainage, hot, moist dressings frequently changed are desirable. Salt solution under the breasts and by rectum, and water by mouth if the patient is not vomiting, are all definitely indicated. Stimulation should be free, but alcohol may be contraindicated by the nephritis. Caffeine, strychnine, and digitalis may be used energetically. The prognosis is always grave.

CHRONIC SUPPURATIVE OTITIS—SURGICAL TREATMENT.

White (*Practitioner,* December, 1903) believes that the simplest and safest treatment of chronic suppurative otitis consists of irrigation combined with "otectomy" in cases where obstruction exists. The tympanic membrane should be cut out as completely as possible, especially in the case of children; with the membrane it is nearly always advisable to remove the malleus, and in some cases the incus. Granulations must be scraped out. Some authorities appear to regard granulations as a safeguard, but the author nearly always found them diseased in these cases, and finds a much surer safeguard in antiseptics. After the operation the ear is well irrigated with an antiseptic solution, and treated lightly with a dusting powder.

The operation gave rise to very little disturbance in the majority of the thirteen

cases on which the author has operated, except temporary facial paresis, which occurred twice. There had been in most cases a remarkable absence of severe pain, especially in the cases that had previously undergone a course of irrigation. In several cases the operation gave great and immediate relief to pain. In no case was there any marked diminution in hearing, and in some the hearing was certainly improved. The operation renders possible efficient irrigation of the diseased cavities. The cases operated upon support the belief that chronic suppurative otitis is generally curable by treatment through the meatus, and that such cases should not be allowed, through neglect, to go from bad to worse, nor subjected unnecessarily to the severe ordeal of a so-called radical operation.

Reviews.

THE MATERIA MEDICA OF INDIA AND THEIR THERAPEUTICS. By R. N. Khory and N. N. Katrak. Bombay: The Caxton Works, 1903.

This is an exhaustive work in two volumes of about 800 pages each, and is without doubt a very valuable contribution to our knowledge of East Indian drugs, and of other remedial measures as well. The work does not deal solely with drugs which are native to India, but includes most of those which are commonly employed by practitioners in other portions of the world, such, for example, as colchicum, quercus alba, the various pines and balsams, and such distinctly local drugs as echinacea angustifolia. We have examined what the authors have to say in regard to the therapeutics of most of the preparations which they consider, and find that their advice is valuable. It is not by any means comprehensive, and is more of the nature of the information given in a dispensatory than in a book on therapeutics. At the end of the second volume is an appendix in which the drugs are classified according to their physiological influence, and at the close of each volume an exhaustive therapeutic glossary is also added which does not refer to definite pages, but which gives suggestions as to the drugs which may be employed in various cases of disease. Without doubt the book will prove of value to those for whom it is prepared, and no library which seeks to be complete in the literature of this subject can afford to be without it.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. Edited by Solomon Solis Cohen, A.M., M.D. Volume VII: Mechano-Therapy and Physical Education and Exercise and Physical Education by Muscular Exercise.
Philadelphia: P. Blakiston's Son & Co., 1904.

Volume VII of Dr. Cohen's well known system of Physiologic Therapeutics is written in large part by Dr. John K. Mitchell, who deals with the subjects just mentioned in the title. His article is copiously illustrated by photographs which indicate the motions which should be made in the carrying out of these therapeutic measures. Dr. Mitchell's portion of the work covers 220 pages, and is followed by that upon physical education by muscular exercise by Dr. L. H. Gulick, of New York. He considers the subject of exercise and development, the materia gymnastica, sports, games, and systems of gymnastics. The book closes with addenda which cover more than one hundred pages, and which are devoted to orthopedic apparatus, which is discussed by Dr. J. K. Young; correct methods in orthopedic surgery, by Dr. H. A. Wilson; and another upon physical methods in ophthalmic therapeutics, by Dr. W. L. Pyle.

We have more than once pointed out that this system possesses a very distinct value, not only because the material which it contains is excellent, but more still because it serves to impress upon the profession the fact that remedial measures other than drugs are always better than any other plan of treatment if they can possibly be employed. We fear that physicians in general will not take the trouble to peruse this book to the extent that its contents deserve, and to the extent which will be of value to them in their daily work. If they do not it will be their loss, for both the editor and his collaborators have prepared a volume which well deserves their attention.

A PRACTICAL TREATISE ON NERVOUS DISEASES FOR THE MEDICAL STUDENT AND GENERAL PRACTITIONER. By F. Savary Pearce, M.D.
New York and London: D. Appleton & Co., 1904.

Dr. Pearce, the Professor of Nervous and Mental Diseases in the Medico-Chir-

urgical College of Philadelphia, has provided us with a small handbook on Nervous Diseases covering less than four hundred pages, and designed as stated in its title "For the Use of Practitioners and Students." The first four chapters of the book, which cover 114 pages, are devoted to such general considerations as the anatomy and physiology of the nervous system, its general pathology, the general symptoms, and methods of examination, including nomenclature in nervous diseases, with final chapters upon general therapeutics, the prevention of nervous disease, and the acquirement of nervous health. The remaining pages of the book deal with the disorders of the nervous system, diseases of the cranial nerves, the peripheral and spinal nerves, the membranes of the brain; the brain and spinal cord; general and functional nervous disease, trophic disorders, intoxications and general paresis. An appendix of some twenty pages is devoted to disorders of sleep, to "details" and a formulary. It is evident, therefore, that the book cannot be in any sense exhaustive, nor does it, so far as we know, attempt to be such. Most of the illustrations which it contains are excellent. Some of them are well known to medical readers, but many of them are from the writer's own wards. Most of these show what they are intended to show, but some do not, as for example Fig. 29, which is supposed to show wrist- and toe-drop following typhoid fever. Again, Fig. 70 does not show the skullcap but rather the membranes of the brain after its removal, if we interpret it correctly. The list of prescriptions at the end of the volume is too limited to be of very great value to the student.

DISEASES OF THE EYE. By L. Webster Fox, A.M., M.D. With five colored plates and two hundred and ninety-six illustrations in the text. New York and London: D. Appleton & Co., 1904.

According to the preface, this book is the outgrowth of a series of lectures delivered by the author at the Medico-Chirurgical College and Hospital in Philadelphia during the last ten years, and we think the students of that institution are much to be congratulated upon the thoroughness with which they have been taught the subject of ophthalmology. Beginning with a chapter on the development and anatomy of the eye, the author takes up the various external diseases, as well as those which implicate the deeper structures—that is, the choroid, the retina, the optic nerve, etc.—and considers in detail affections of the orbit, refraction, and the anomalies of the external ocular muscles. A chapter on the relation of ocular affections to general disease and one on the pupil in health and disease have been incorporated, always most acceptable additions to text-books on ophthalmology. A chapter on the use of Roentgen rays in locating foreign bodies in the eye finds place.

The book is freely illustrated, many of the drawings and illustrations being borrowed; others are from cases in the author's practice. It is a pity that proper credit for a number of the borrowed figures is not given, either with the legends or in the list of illustrations at the beginning of the book. Doubtless these omissions will be corrected in future editions. There are one or two curious blunders in connection with these cuts. For example, Fig. 119 is described as illustrating retrobulbar neuritis and credited to Fuchs. It is, however, the well known diagram from Pagenstecher and Genth's Atlas of the Pathological Anatomy of the Eye, and depicts not retrobulbar neuritis, but exactly the opposite condition, namely, intraocular neuritis with the distention of the optic nerve sheath which sometimes accompanies it. So, too, in the diagrams of the normal visual fields in glaucoma, taken from Haab's work, the external limits of the field are labeled "black." The lines of course refer to the ordinary dimensions of the field for form or white.

It seems to the reviewer that there is a surprising omission in the description of diseases of the conjunctiva, namely, the failure to describe as a distinct disease acute contagious conjunctivitis, and the bacteriological investigations in connection with this affection. Indeed, throughout the book this aspect of the subjects is defective. Naturally the operative side of ophthalmology receives very full consideration, and there are excellent descriptions of operations suited to such conditions as ptosis, ectropion, entropion, cataract, and the like. The subject of albuminuric retinitis receives very full consideration. The surprising statement is made that in twenty-three patients with

recurring subconjunctival hemorrhages, urinary examinations proved negative, and the author concludes that these extravasations, while they may be premonitory symptoms of nephritis, are not associated conditions. This undoubtedly may be true, but that subconjunctival hemorrhages also accompany many of the stages of chronic nephritis is equally true. A special type of retinitis is attributed to albumosuria.

The book contains an appendix, with illustrations of instruments, a number of very useful formulas, and a glossary. Some of the words are defined, to put it mildly, somewhat oddly: for example, glaucoma—"a disease of the eye characterized by a greenish opaque appearance behind the pupil;" astigmatism—"defect in which light rays are not brought to a proper focus by the unaided eye."

We have no doubt that Dr. Fox's book will meet with a cordial reception and be especially welcome to those whom he has taught. He has not hesitated to give definitely his own views on most of the subjects which he discusses, and this is a feature of the book much to be commended.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. March 1, 1904.
Philadelphia and New York: Lea Brothers & Co, 1904.

With this issue of Progressive Medicine a change has been made in the method of publication. It still appears quarterly, but has been reduced in price from ten dollars to six dollars a year, and it appears in a paper cover instead of the binding which has been utilized heretofore. This reduction in price is due to the fact that a large number of the profession who do not feel able to pay ten dollars for any publication might have in their hands this excellent summary of current medical literature, prepared by the distinguished gentlemen who make up its staff of collaborators, among whom may be mentioned Professor Belfield of Chicago, Professor Bradford of London, Professor Clark of Philadelphia, Professor Randolph of Baltimore, and others. The present volume contains, as did the volume for 1903 of the same date, articles upon the surgery of the head, neck, and thorax, by Dr. Charles H. Frazier, Professor of Clinical Surgery in the University of Pennsylvania; one upon the infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by Robert P. Preble, Professor of Medicine in the Northwestern Medical School; one on diseases of children, by Dr. Floyd M. Crandall, the Adjunct Professor of Pediatrics in the New York Polyclinic Hospital; another upon laryngology and rhinology, by Dr. Charles P. Grayson, lecturer on these subjects in the University of Pennsylvania; and one upon Otology, by Dr. Robert L. Randolph, the Assistant Professor of Ophthalmology and Otology in the Johns Hopkins University. These contributions are not abstracts of original articles from various journals; they are stories of the progress made in these departments, stories which are told by the collaborators, and which are embellished by a free expression of their views as to the best methods which should be employed, and as to the results which should be considered as a permanent gain to diagnosis and treatment. In the article upon diseases of the head, neck, and thorax, careful consideration is given to the subject of injuries and surgical diseases of these parts, and in that upon the infectious diseases most interesting information is given in regard to pneumonia, diphtheria, scarlet fever, and the other infectious diseases which at this season engage the attention of every physician. Dr. Crandall's article upon diseases of children opens with a discussion of mortality in early life, and this is followed by others upon the maladies of childhood as they are met with by the general practitioner. The general physician will find many valuable hints as to treatment in the articles of Drs. Grayson and Randolph. The large clinical opportunities of the collaborators of Progressive Medicine make their opinions in regard to these subjects of more than ordinary value.

A HANDBOOK OF OPHTHALMIC SCIENCE AND PRACTICE. By Henry E. Juler, F.R.C.S. With illustrations. Third Edition, Revised and Enlarged.
Philadelphia: Lea Brothers & Co., 1904.

It is just twenty years since the first edition of Mr. Juler's book appeared, and it at once obtained a favorable reception

in England and America, being particularly noteworthy on account of the numerous colored illustrations, both of external diseases of the eye and of the fundus oculi. This third edition has been brought up to date, and all of the favorable comments that have previously been made may now be repeated with emphasis. It is essentially a practical book written for the needs of the student and the ophthalmic practitioner, liberally and well illustrated, conservative in tone, safe in practice, excellent in advice. A very happy portion of the volume is contained in the appendices, and the excellent plates giving the normal appearance of the various structures of the eye under the microscope, as well as many of their pathological deviations, deserve full commendation. The chapter on the Refraction of the Eye is written conjointly with Mr. John Griffiths, and is an excellent practical exposition of this subject, not excessively burdened with unnecessary mathematical formulæ. The book may be heartily recommended.

ESSENTIALS OF PELVIC DIAGNOSIS. With Illustrative Cases. By E. Stanmore Bishop, F.R.C.S. Eng. Appendix on Examination of Blood, etc., by Chas. H. Melland, M.H. (Lond.), M.R.C.P.
New York: William Wood & Co., 1903.

This book is constructed on a somewhat new plan—*i.e.*, the writer does not assume that the one who sees it knows the disease, but simply that he is familiar with the most prominent symptoms. From the symptoms the manual is so arranged that the observer may logically deduce the diagnosis. Thus, there are a series of numbered paragraphs, entitled lines of diagnosis, in which the more broadly marked and more general dividing symptoms are given in italics, and the whole in considerable detail. There are also diagnostic tables, in which a more comprehensive view may be taken of the entire class, group, or section of the pathological conditions to which the case belongs. Lastly, there is a list of illustrative cases, taken from actual practice.

The book closes with an appendix giving methods of examining the blood, and the technique for examination for tubercle bacilli and gonococci.

The introductory chapters are devoted to methods of diagnosis, the use of the hand, the position of the patients for the purposes of diagnosis, the use of instruments for diagnosis, and pain as a factor in the diagnosis.

In the second part the true system is elaborated by which one accustomed to working out details may at least approximate the diagnosis of all affections of the perineum, external genitals and inguinal region, abdominal wall, vagina, rectum, bladder, and the prostate. There is a part devoted to swellings in the pelvis, felt bimanually, and one to swellings of pelvic origin which have developed into the abdomen.

The diagnostic tables are extremely alluring, and are likely to prove serviceable.

ARTERIA UTERINA OVARICA. The Utero-Ovarian Artery, or the Genital Vascular Circle. Anatomy and Physiology, with the Application in Diagnosis and Surgical Intervention. By Byron Robinson, B.S., M.D.
Chicago: E. H. Colegrove.

The reader is prepared for something unusual in glancing over this work by the large number of extraordinary illustrations, which demonstrate the general vascular circulation of, not only man, but of the guinea-pig, dog, cat, rabbit, leopard, cow, sheep, pig, horse, monkey, and, greatest treat of all, of the golden-faced baboon.

Although the book is almost purely an anatomical study, in its logical inferences it presents so many points of practical importance that it should be carefully studied, at least by the practicing gynecologist. Indeed, the author has in many instances pointed out the application of the facts he has taken such pains to demonstrate as helps in diagnosis and in deciding for or against surgical intervention.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

It seems but a few years since the pancreas was practically "outside the range of practical politics" so far as diagnosis or treatment was concerned. Nowadays its diseases are not only diagnosed with some approach to certainty, but are even within the reach of surgery; almost every

month brings some fresh information or experience in diseases of the pancreas. Dr. Sidney Phillips reported at the Clinical Society this month the case of a woman aged twenty-six who had complained of pain in the epigastrium for nearly four months, but not of such a character as to suggest biliary colic. Two months after the beginning of the pain jaundice appeared; laparotomy was then done, and showed that the pancreas was greatly enlarged, apparently from chronic inflammation. Two months later sugar was found to be present in the urine, and although the jaundice subsequently disappeared the glycosuria continued, and the woman died of diabetic coma nine months after the operation. The jaundice in these cases seems to be due to pressure of the inflamed pancreas on the common bile-duct where it joins the pancreatic duct and opens into the duodenum.

In most of these cases of chronic pancreatitis the gall-bladder is distended, and Mr. L. A. Bidwell said that in his opinion it is always wise to drain the gall-bladder for two or three weeks after the operation. Glycosuria certainly need not occur; in four cases under his care no such complication had occurred after the operation.

Almost simultaneously with this case come records from provincial hospitals of two cases of pancreatic hemorrhage, both in women, and both with a sudden onset with severe pain in the epigastrium, vomiting, and collapse. In both cases laparotomy was performed. In one which proved fatal a portion of the pancreas was removed; in the other a simple incision was made into the pancreas to relieve tension, and the patient made a good recovery. From Manchester also comes a record of a pancreatic cyst in a man aged forty-five years not only diagnosed, but successfully drained; the patient made a perfect recovery.

The acute hemorrhagic pancreatitis to which I have referred evidently must be considered in every case where the possibility of perforated gastric ulcer presents itself, for in both the cases mentioned here the symptoms had been attributed to perforation of a gastric ulcer, and conversely the mistake has been made of supposing acute pancreatitis to be present where the event showed perforated gastric ulcer.

This latter condition, urgent as it is, and calling for immediate operation, is by no means easy of diagnosis. In one case recently reported the patient, in spite of a sudden onset of abdominal pain, showed symptoms which suggested typhoid fever, and it was not until twelve days after the perforation that operation was performed and a localized abscess opened which was seen to be connected with a perforation of the stomach.

At a recent meeting of the Medical Society of London another condition was mentioned as closely simulating perforation of a gastric ulcer, namely, rupture of a tubal gestation. Dr. Handfield Jones said that in such cases little help could be obtained from the menstrual history, and pelvic examination might not solve the difficulty; the pain is often generalized over the abdomen, and the only way to be certain of the diagnosis is to perform laparotomy. As Dr. Heywood Smith pointed out, however, in a ruptured tubal gestation the condition of the breasts may assist the diagnosis.

The importance of examining the pelvic organs in suspected abdominal disease was emphasized at this meeting: for instance, severe nausea and vomiting might be cured in some cases by the treatment of metritis; pelvic adhesions might be responsible for troublesome constipation and nausea. But on the other hand a case was mentioned in which removal of the ovaries had been proposed for the cure of severe dysmenorrhea, but the symptoms subsided with the simple provision of spectacles for an error of refraction in the patient.

At the Pathological Society a discussion on arteriosclerosis was recently opened by Dr. F. D. Savill, who described particularly an overgrowth of the muscular wall of the arteries, hypermyotrophy as he called it, which he considers to be part of a condition common in elderly people, with high arterial tension, and occurring often quite independently of any disease in the kidneys, which might indeed be perfectly healthy. Prof. Clifford Allbutt, referring to the clinical aspect of this condition, said that one of its most satisfactory features is its amenability to treatment. Repletion, relative or positive—*i.e.*, tempered or untempered by air and exercise—is the chief etiological factor in many cases, and careful alterative treat-

ment with attention to the *primæ viæ* might do much to relieve them. Whilst this excessive arterial tension with its consequent increase of "expenditure in labor and plant" is most commonly found in old age, the watchful physician may detect it occasionally in young persons, especially in boys. Dr. Pavy also was of opinion that much might be done by careful dieting and medication in such cases to restore the circulation to its normal condition.

The treatment of gonorrheal conjunctivitis was under discussion recently at the Ophthalmological Society. A case was reported in which in addition to perchloride of mercury and protargol (five-per-cent), a three-per-cent solution of hydrogen peroxide was dropped into the eye every four hours. When this latter instillation was omitted ulceration of the cornea commenced; the peroxide was then used again, and the corneal ulcer quickly healed. The conjunctivitis was certainly cured with unusual rapidity, and it seemed probable the excellent recovery was due to the peroxide. Mr. Tweedy said that he had used hydrogen peroxide with good results in hypopyon ulcer. From the Moorfields Hospital, however, came an adverse opinion on the value of the drug, for Mr. Holmes Spicer said that he had found in a large number of cases of purulent ophthalmia that treatment with silver nitrate gave better results than the use of hydrogen peroxide alone. At one time the peroxide was used there for all cases of ophthalmia purulent in character, but it had now been given up. Protargol, it was stated, is of very little use if of weaker strength than 20 per cent.

The recent Lettsomian Lectures were full of practical interest. Mr. Lockwood took for his text "Aseptic Surgery." He spoke of the difficulty in finding an ideal chemical antiseptic; it was, he said, "as arduous as the quest of the Holy Grail." The fact that one chemical is better than another in the laboratory does not prove that it is so also in the operating theater. To take one point only into consideration, an antiseptic which suits one surgeon might not suit another, simply because in the latter case it keeps his skin in a continual state of irritation, whilst in the former it had no irritating action whatever on his skin. He himself had in this way been troubled when using sublimate; but now in using the biniodide of mercury he is perfectly free from discomfort. But even on the main point, the antiseptic value of various chemicals, there is great difference of opinion, and laboratory results are hardly comparable with surgical experience. Even when according to laboratory results a chemical is a poor antiseptic, it might nevertheless be of great value in practice. This is the case with iodoform, which is an exceedingly feeble antiseptic, but for all that is very valuable for wounds about the rectum and in some tubercular ulcerations. Different kinds of infection require different kinds of antiseptic: for instance, the bladder and urethra may require nitrate of silver, and this may be increased in strength until it reaches, as in one case quoted, as much as one grain to the ounce; in the same case 1 in 10,000 of sublimate caused intense pain. In the treatment of fetid abscesses in connection with the appendix, or with the middle ear, a five-per-cent solution of hydrogen peroxide is found most effectual. For the surgeon's hands during operation Mr. Lockwood recommends a lotion of biniodide of mercury dissolved in methylated spirit (1 in 500) 75 parts, with water 25 parts.

Next week an event is to take place which will be hailed with satisfaction by every medical alumnus of Cambridge University. The King and Queen have promised to open the new buildings of the Medical School of that university. To those of us who studied in the old buildings, and learnt our anatomy in the old shed which served as a dissecting-room, our alma mater must seem at last to have clothed herself in suitable apparel. Certainly the old buildings were utterly unworthy of one of the oldest universities in the world.

As I close this letter one of the most venerable and distinguished members of our profession, Sir Samuel Wilks, is suffering from a serious illness, a gangrenous appendicitis, and according to the latest accounts has not rallied satisfactorily since the operation was performed. A few days ago a well known physician passed away, the physician extraordinary to the King, Sir Edward Sieveking, who was also on the consulting staff of St. Mary's Hospital. Many Scotch gradu-

ates will also be sorry to hear of the untimely death of Dr. Milne Murray, one of the best known gynecologists of Edinburgh.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

The isolation of tuberculous patients, who are so numerous in the general wards of the Paris hospitals, is a question which is being examined into most carefully at present, and the following conclusions have been voted by a commission under the direction of the Minister of the Interior: All direct relations between tuberculous and non-tuberculous wards are to be forbidden. Special hospitals are to be erected for the former class of patients. It is absolutely forbidden to place a tuberculous patient in the common ward.

The proportion of cures in cancer of the uterus is perhaps somewhat different from what is generally accepted. According to Dr. Lejars, out of 100 cases only 20 are considered to be in a condition to be operated upon, and of these five only are definitely cured by the operation. This is certainly true at the present time, because patients suffering from this disease are generally seen by the practitioner much too late, when the disease is far advanced. The statistics furnished by Flaischlen in the *Centralblatt für Gynäkologie,* and indicating the results obtained in Ruge's clinic in Berlin, are much more hopeful. Out of 48 cases operated by vaginal hysterectomy, 17 are still alive; 12 were operated over ten years ago, and 5 over seven years ago. Three other cases have died from another disease without showing symptoms of a recurrence of the original disease. There were 4 deaths from the operation, and 24 relapses, most of them taking place during the second year.

In a case of typhoid fever which Dr. Albert Robin had in his service at the Beaujon Hospital, venesection was used on account of ataxo-adynamic symptoms, and indications that toxemia and insufficient oxidation were present. The result was good, and seems to tally with what is seen in certain forms of typhoid fever accompanied by metrorrhagia or mild hematemesis.

It is interesting to note the progress that has been made in Professor Pinard's obstetrical service. While he was at Lariboisiere, from 1882 to 1889, there were 12,580 labors with 94 deaths, or 0.74 per cent, 0.39 per cent of which were by septicemia. At the clinique Baudelocque, from 1890 to 1903, there were 31,539 labors with 167 deaths, or about 0.53 per cent of mortality, and 0.22 per cent from infection. Six hundred and thirty-one operations were performed, mostly by Dr. Segond, and there were 35 deaths. These statistics are certainly very encouraging.

At a recent meeting of the Society of Surgery Dr. Lucas Championnière spoke on certain types of fractures of the radius caused by the crank of the automobile. He also showed a radiograph of a direct fracture of the radius caused by the crank striking the radius. There is also another variety of fracture caused by the hand being bent backward by the return of the crank. In the first case the line of fracture is situated in the lower third of the bone; in the other it exists immediately above the styloid process of the bone.

Dr. Plicque has been trying recently silicate of sodium in the treatment of lupus. Night and morning the spot is painted with the following solution:

> Silicate of soda, 20 grammes;
> Sterilized water, 80 grammes.

It is well to add a little fuchsin to modify the whiteness of this preparation. A very small amount, however, should be added. In two cases of lupus of the face of long standing, there was noticeable improvement after six weeks in one case, after a month in the second. A few nodules are left, however, on which it would be interesting to try interstitial injections of silicate of soda.

At a recent meeting of the Society of Dermatology Dr. de Beurmann described a case of epithelioma of the breast, which had increased in size very rapidly. Last August it appeared as a node in the breast of a woman, who was nursing a child, and in two or three months was very much increased in size. It is now no longer movable on the pectoral, and Dr. de Beurmann said he considers the best course to pursue is a complete excision followed by radiotherapy. Dr. Brocq remarked, on being questioned by Dr.

Leredde, that arsenic might be tried in injections, but it was hard to say what would be the result. Dr. Jullien also proposed the use of quinine as recommended by Dr. Jaboulay. Ulceration plays a certain rôle, as tumors which are not infected do not seem to progress so rapidly. At the same meeting Dr. Balzer spoke against injections with vaselin, which are so often followed by nodules. Dr. Milian insisted upon the fact that when injections are really made into muscle with oil, for instance, they never cause any nodules. Dr. Hallopeau described a case of gummatous ulceration, which was through a mistake treated by the application of compresses impregnated with a 5:1000 solution of corrosive sublimate. The result after three weeks of this treatment was most favorable.

Dr. Alfred Martinet has recently written in the *Presse Médicale* an article on the best method of administering antipyrin. The usual method is that by capsules, which is by far the worst, as this drug is quite irritating for the mucous membrane of the stomach. It is usually given this way because it is cheaper, but it would be far preferable to have a solution. It is well to give some bicarbonate of soda with the antipyrin, or better still the following:

Antipyrin, 2 grammes;
Bicarbonate of soda, 1 gramme;
Distilled water, 60 grammes.

A little cognac or syrup of bitter oranges may also be added. A tablespoonful contains 50 centigrammes of antipyrin. Antipyrin should always be given outside the periods of digestion—that is to say, half an hour before or an hour and a half afterward. As for hypodermic injections of antipyrin, they are apt in many cases to cause sphacelus if too concentrated. Even with 1-to-20 solutions the danger is not absolutely put aside. A solution of antipyrin 2 or 5 for 10 of water is excellent in certain forms of epistaxis, in old people with a high tension pulse. As an ointment it is useful in anal fissures:

Chlorhydrate of cocaine, 0.5 centigramme;
Antipyrin,
Oxide of zinc, ää 2 grammes;
Lanolin,
Vaselin, ää 10 grammes.

For external use.

Antipyrin should never be given in large doses at first, the maximum amount the first time being 50 centigrammes.

At a meeting of the Society of Therapeutics, held on the 10th of February, Dr. Bardet communicated the observation of a patient of Drs. La Neele and Cornicres treated by Marmorek's antituberculous serum. The case was that of a woman thirty-four years old, who was affected with acute tuberculosis of both lungs, and received forty-seven injections, making a total of 720 grammes of serum. The symptoms observed—râles, fever, dyspnea, cough, abundant expectoration—have gradually disappeared. At first there was a large number of Koch's bacilli, but these grew less frequent, and now they can only be found in one preparation out of three. No clinical symptoms of the disease are left, and the physicians who have been watching the patient consider that the lungs have been restored to their original condition.

Drs. Klein and Jacobsohn presented at the same meeting the observation of a patient thirty-one years old who was treated by the injection of 155 cubic centimeters of this serum. Last August there were pronounced signs of infiltration, and abundant expectoration. The patient is now so much better that he considers himself cured. The only symptom seen at present is furnished by a few crackling sounds at the summit of the left lung.

Dr. Créquy reported the treatment he had used in a case of cirrhosis of the liver. He was consulted in September of 1902 by a patient suffering from this disease, to whom he gave the usual treatment—milk, diuretics, iodine—and he was obliged to make twelve punctures, 8 to 10 liters being removed each time. In 1903 the patient caught the influenza, and grew much worse. The following treatment was then carried out: Milk and a mild diet. Every day he was given a gramme of hepatic extract. He also received every day 50 centigrammes of nitrate of potassium in an infusion of dog's-grass. The general condition improved rapidly, the hemorrhages ceased, the edema and ascites disappeared. The patient has been able to take up his occupation during the last four months.

Notes and Queries.

PREANESTHETIC SURGERY.

The following historical note from the *British Medical Journal* of February 6, 1903, is of interest:

Among the "human documents" concerning the discovery of anesthesia there is none of more thrilling interest than a letter in which Dr. George Wilson gives Sir James Simpson an account of his sufferings when undergoing amputation of a limb in the days before chloroform or ether. Speaking of the operation he says: "Of the agony it occasioned I will say nothing. Suffering so great as I underwent cannot be expressed in words. . . . The particular pangs are now forgotten; but the black whirlwind of emotion, the horror of great darkness, and the sense of desertion by God and man, bordering close upon despair, which swept through my mind and overwhelmed my heart, I can never forget." Worse than the operation itself was the period of waiting for it, when Dr. Wilson says the patient felt like a condemned criminal preparing for execution. The full text of the letter may be read in the *Practitioner* for October, 1896. With it may be compared the following description of an amputation before the days of anesthesia, unearthed by a writer in the *New York Medical Journal* from a book by Dr. W. Beach of New York, which was published in the early forties. It should be stated that the description is quoted by Beach from a newspaper (bearing date July 21, 1841), but evidently he did not think it overdrawn:

"The next (case) was an interesting one of white swelling, for which the thigh was to be amputated. The patient was a youth about 15, pale, thin, but calm and firm. One professor felt for the femoral artery, had the leg held up for a few moments to ensure the saving of blood, the compress part of the tourniquet was placed upon the artey, and the leg held by an assistant; the white swelling was frightful. A little wine was given to the lad; he was pale, but resolute; his father supported his head and left hand; a second professor took the long, glittering knife, felt for the bone, thrust in the knife carefully but rapidly; the boy screamed terribly; the tears ran down the father's cheeks. The first cut from the inside was completed, and the bloody blade of the knife issued from the quivering wound; the blood gushed by the pint; the sight was sickening; the screams were terrific; the operator calm. Again the knife was thrust in under the bone; the terrific screaming was renewed; one or two picked up their hats to leave; scream on scream—and again the bloody blade of the knife was issued from the wound, and was laid aside. The flesh quivered, and the boy cried agonizedly, 'Oh, father! father! father! Oh, mercy, mercy!' The flesh was thrust back with a small piece of wet linen, the divided ends of the quivering muscles were stopped from blood with a sponge, the saw glistened in the hands of the operator; the father turned as pale as death; the boy's eyes fastened on the instrument with glazed agony—grate—crush—once—twice—and the useless limb, from the toes to the centre of the thigh, was quickly dropped into the tub under the table. At this moment the father's eyes closed, his child's hand dropped from his grasp, and he reeled from the table, and fell senseless on the floor. The arteries were taken up, cold compresses only were applied; one or two stitches in the flesh, one or two more screams, and the boy was taken into an adjoining room and laid on a bed. The whole took less time than the details have occupied in writing."

Beach, who, it must be remembered, held a brief against operation for white swelling, says that such displays of surgical art are fraught with alarming consequences, and by way of proof calls an unnamed poet as witness to the fact that "Scenes of blood the human feelings sear." It may be admitted that although preanesthetic surgery did not necessarily harden the hearts of surgeons, it could hardly have tended to soften their manners. The sight of an operation nearly made Simpson himself abandon the profession. Among the incalculable gains which anesthesia has brought to surgery, not the least is that it has made the practice of the art possible to men of delicate sympathy, who could not brace their nerves to the infliction even of salutary suffering on a sentient fellow creature.

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Original Communications.

ARTIFICIAL DILATATION OF THE CERVIX.

BY STRICKER COLES, M.D.,

Demonstrator and Clinical Lecturer on Obstetrics in the Jefferson Medical College; Assistant Obstetrician to the Jefferson and Philadelphia Hospitals.

It would be well to consider first the changes in the cervix during gestation and nature's method of dilatation. In the early months of pregnancy as the uterus grows, there is the formation of the lower uterine segment, which is formed of that part of the uterus just above the internal os, and is not a part of the cervix. The decidua of the uterine wall comes down to the upper surface of the internal os, and the cervical canal is covered with mucous membrane. This mucous membrane and its glands undergo hypertrophy, and with its increased secretion there is formed a plug of mucus, which remains for some time in the cervical canal. The cervix gradually enlarges and becomes softer as the pregnancy advances, and remains intact—that is, there is the external os, canal, and internal os just as there was before pregnancy, with the exception of the gradual enlargement and atrophy of muscle fiber. The apparent shortening of the cervix is due to the enlargement of the uterus and the marked change of uterine tissue just above, giving a more abrupt termination. The cervix remains intact usually until about the end of the thirty-eighth week of gestation, when obliteration gradually takes place, beginning at the internal os, which

gradually dilates, and then the cervical canal dilates until there is nothing left but the external os, when obliteration of the cervix is complete. Then the external os becomes thinner, and then dilates.

On examination at the beginning of obliteration in primiparæ, the cervical canal will in most cases admit the index-finger with but very slight pressure, and in multiparæ usually one finger can be easily introduced. The natural dilatation of the cervix should take about two weeks, beginning with the internal os, and this should occur without much pain. When obliteration has taken place, then the uterine contractions should become stronger and pains greater, and to have this take place in the best manner for the patient there should be a good bag of waters pouching well, and good uterine contractions pulling the cervix upward and outward. If the pains are too strong and frequent before obliteration occurs, they should be controlled with chloral in 15-grain doses, and if necessary morphine may be given. Should the bag of waters not pouch properly, which is often due to the head fitting tightly in the lower uterine segment and will not allow any of the amniotic fluid to pass, this is often easily corrected by shoving up the head, which will allow the amniotic fluid to pass, and will then remain in front of the head and act as a good dilator. The cases that give the most trouble are those in which the head is in the pelvic canal, it is not well flexed, and the occiput is often behind. The amniotic fluid will not remain in front of the head, and there is virtually a dry labor, the os requiring a long time to dilate.

The methods of dilatation depend on whether or not there are uterine contractions, whether the os is intact or obliterated, and the length of time necessary for delivery. Take first the cases where the cervix is intact with the absence of uterine contractions, and can take one or two days to deliver. Under these conditions the flexible bougie has given me the best results. After preparing the patient, using preferably two-per-cent lysol douche, as bichloride will be found too irritating, introduce the bougie into the cervix, which can always be done during the last month of pregnancy without previously dilating the cervix, along the posterior wall of the uterus unless it meets with resistance, and then to one side according to the location of the placenta, and allow the bougie to stay in until uterine contractions begin, when it should be removed, as it may rupture the membranes if allowed to stay during hard uterine contractions. This bougie usually starts labor in from eight to twelve hours, but if it should not, then two or more bougies may be introduced, or a funnel-shaped bag may be introduced into the uterus after the bougie has been in from six to eight hours, as the cervix will then be dilated sufficiently for its introduction. When the os is not obliterated but the uterine contractions are good, then the funnel-shaped bag may be used. This will be much quicker than the bougie, taking only four or five hours.

In those cases where delivery must be quickly accomplished the hand is the best dilator, using a finger of both hands after the method of Edgar and Bonnaire. Bossi's dilator, if cautiously used, will do good work, or a McLean's bag may be introduced into the cervix and gradually distended. With the hands and Bossi's dilator the cervix can be dilated in from twenty to thirty minutes. If done in less time the risk of laceration is very great, as the cervix has not had time to soften and relax. When the os is obliterated with uterine contractions, whether the membranes are ruptured or are not pouching properly, the best method of dilatation is the introduction of the funnel-shaped bag, and this should be sufficiently distended so that when it is delivered the child's head can easily follow. This bag is made of plain rubber as shown in the illustration. It can be distended to ten centimeters in diameter, which will give complete dilatation when delivered. In those cases where delivery must be completed in less than an hour, the best method for me has been the hand, using first one finger, then two, and then one of each hand, after the method of Edgar and Bonnaire. This method I think is superior to Harris's method of thumb and finger of one hand, as the finger can be carried farther into the uterus and the entire canal dilated at the same time. It also can be applied with greater ease in a small vagina. Bossi's dilator will dilate the cervix in from five to ten minutes, but in a great many cases the laceration of the cervix will be large.

In using this instrument I have taken twenty minutes to complete the dilatation, and have not had a very large tear of the cervix, not nearly as great as when using McLean's bag to complete the dilatation in the same length of time.

To summarize, the bougie will be the best dilator when there is no great haste for delivery and there is present a good bag of waters. The funnel-shaped bag should be introduced entirely into the uterus when the bag of waters does not pouch well or the amniotic fluid has escaped. McLean's bag, introduced into the cervix, may slip out before dilatation

The funnel-shaped bag.

is complete, or if distended too rapidly will tear the cervix. The Edgar and Bonnaire method of sweeping the fingers around the cervix will accomplish dilatation in twenty to forty minutes, and if carefully used will not cause a very severe tear. With Bossi's dilator it should take about twenty minutes to complete dilatation.

With all the methods, it is important that the dilatation is sufficient to allow the head to pass, for if the dilatation is not complete and the child is forcibly delivered by forceps or by version, the danger of laceration is greatly increased. In the last three years I have used the funnel-shaped bag in twenty-two cases, with good results in all. In one case only was there any complication following that could be placed to the use of the bag. In this case the membranes had ruptured when the os was the size of a quarter. After the bag was delivered the cord was found prolapsed. This may be due to the bag when being distended having shoved the head up, and in that way allowed the cord to slip by. The case was hurriedly delivered by forceps, and the child survived. In another case there was slight elevation of temperature lasting for three days, which fell to normal without interference. In this case the membranes had been ruptured for three days.

In the cases where the bag of waters has not been ruptured, or for some reason does not form in front of the child's head, and dilatation progresses slowly, the funnel-shaped bag will be found of great service. Take, for example, the case of a young primipara. She had been in active labor for six hours and the os only the size of a quarter. I saw her first two hours after active labor began, and found the head in the pelvic canal resting against the obliterated cervix, with no amniotic fluid in front of the child's head. On pushing the head up the bag of waters formed. On examination four hours later, expecting to find complete dilatation, to my surprise it was scarcely any larger. The funnel-shaped bag was introduced, and in three hours it was delivered; and in an hour the child was delivered spontaneously, with only a slight tear of the fourchette, which was closed with one catgut suture. The bag should have been introduced earlier, but not wishing to make many vaginal examinations I had waited, not expecting the amniotic fluid to recede. In this class of cases I have used this bag nine times. Four terminated spontaneously and five with forceps. In none was there a rise of temperature above 100° F., and in all of them the lacerations of the cervix and pelvic floor were smaller than if the bag had not been used.

Another case in which the bag did good work was one of twins. The membranes of the first child ruptured, and a foot and cord prolapsed into the cervix, which was the size of a half-dollar. The bag was introduced and distended with care to see that the cord was not caught. In two

hours the bag was delivered, and both children were easily delivered and survived.

From my experience I have arrived at the following conclusions: That the lives of many children will be saved; that the danger from sepsis is lessened, as the labor is greatly shortened and the tissues are not devitalized by prolonged pressure; that the lacerations of the cervix and vagina are diminished, especially by the use of the hydrostatic pressure by the bags and by the careful use of Bossi's dilator, and in this way we will get complete dilatation and will not have large lacerations, as when the child is forcibly delivered through a partially dilated cervix.

A CONSIDERATION OF THE VALUE OF TOPICAL APPLICATIONS TO THE UPPER AIR-TRACT.

By Frank Whitehill Hinkel, A.M., M.D.,
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From remote antiquity various forms of medicated applications have been made to the fauces and oropharynx—that part of the throat being readily accessible through the mouth. With the application of the laryngoscopic and rhinoscopic mirror to purposes of diagnosis and treatment came an enlargement of the area of the upper air-tract accessible to the intelligent manipulation of topical applications. So recent is this enlargement of the field of local applications that it is included in the professional experience of men who are still active in the practice of medicine.

The numerous text-books upon diseases of the nose and throat contain many formulas of medicaments for local use, with descriptions of the different methods by which they may be applied, and with directions for their use in various diseased conditions. But they give very little, if any, consideration to the manner in which these remedies are supposed to exert their beneficial effects. While the theories upon which surgical procedure is based and the statistics of the results of different operations are more or less carefully considered, the beneficial effects of local medication are, as it were, taken for granted. By frequent repetition the directions for their use seem to have acquired an axiomatic character. Even in the excellent "Handbook of Local Therapeutics" by Harrison Allen and his coadjutors the statements about the effects of the local use of different drugs are given usually without experimental evidence. In the preface the authors say: "It was known that no text was available in which the local actions of drugs were not subordinated to their general actions. In the lines of special medicine, as represented in General Surgery, Dermatology, Otology, Rhinology, Laryngology, and Ophthalmology, it was believed that the topical uses of drugs are among the most important to which they can be put, and that statements concerning them from experienced practitioners would be acceptable to the profession." As is indicated by this statement, when authority is quoted it is almost always a clinical report that is briefly referred to. Cohen, in his work "Inhalation, its Therapeutics and Practice," published in 1866, reports numerous experiments which demonstrate the penetration of nebulized medicaments into the bronchial tree, but he adduces no experimental evidence to show the effects of drugs so administered.

That there is less use of topical applications to the throat and nose than formerly is evident to every observer of experience in laryngological practice. Following the development of a rational pathology of many of the diseases of the throat and nose have arisen improved surgical procedures for the correction, where possible, of mechanical obstacles to natural repair of the lesions, or for the ablation of areas of disease. There is more dependence upon these surgical methods than upon the application, formerly so common, of sprays and of pledgets of cotton soaked in medicaments. Nevertheless many diseases remain whose manifestations are not amenable to surgery. What are we to believe concerning the efficiency of topical treatment of them?

The "Handbook of Local Therapeutics" makes this tentative classification of the local action of remedies (page 13): "All remedies act locally: (1) By restoring the normal functions; *e.g.*, by *stimulating* the blood to flow through a congested region, or by *exciting* gland action and thus promoting secretion. (2) By *protecting* a denuded surface, thus giving it rest. A protectant is also of use in ex-

cluding microbes and vibrating constituents of the atmosphere. (3) By means of *absorption* from the surface; thus constricting the small blood-vessels and checking hemorrhage; . . . creating anodyne impressions of peripheral nerve-ends for the relief of pain."

The *first* manner of local action in this classification, by stimulation, is plainly that of an external irritant, and it is to be distinguished from an internal influence upon vital action after absorption through the cell wall, as in the third manner of action. It is analogous to the contraction of a muscle in response to a touch upon the surface of the skin. Medicaments which exert an influence in this manner act as irritants to the surface. The astringent and caustic drugs probably produce their effects chiefly in this way. Indeed, the superficial irritation induced by the manipulations incidental to the making of topical applications to the nasal chambers, the nasopharynx, and the larynx, is a large factor I believe in producing whatever effects may follow the application of some of the remedies so used. I shall revert to this point again in considering local action from absorption of the medicament.

The *second* action of local remedies, as protectants, is not frequently employed in the treatment of the upper air-tract except by the use of oils sprayed upon the nasal mucosa.

Medicaments which fall under the *third* head of Allen's classification, which act if at all by absorption through the surface to which they are applied, are of particular interest in relation to the question we have propounded about the value of topical applications. We know that ready absorption is one of the chief functions and characteristics of the mucous membrane throughout the body in health. In what ways have we been able to take advantage in the air-tract of this characteristic of mucous linings?

The peculiarities of structure and function of the upper air-tract require that medicaments shall be applied to its mucous lining in some one of the following forms:

1. *Insufflations,* by means of which powders are dusted upon the surface to be treated.

2. *Inhalations* of steam or volatile substances.

3. *Gargles.*

4. *Douches,* either by piston or bulb syringe or by atmospheric pressure.

5. *Sprays,* either of water or oil, propelled by pressure of steam or air.

6. *Pigments and unguents,* which are applied by means of cotton pledgets upon suitable applicators.

1. *Insufflations* are now used mainly to apply antiseptic powders to the nasal mucosa after surgical operations. These powders are usually compounds of iodine, such as iodoform, iodol, aristol, etc., whose medicinal virtue lies in their slow liberaton of iodine under the influence of heat and moisture. The powder of course is not absorbed through the mucous membrane, the iodine is liberated very slowly, and the secretions soon carry away the insufflation. To be even slightly effective when applied to the surface of the upper air-tract these insufflations need to be repeated frequently. Except when retained in place by tampons the medicinal value of these powders is very questionable. The same objection obtains to my mind in their use upon ulcerated surfaces where they cannot be mechanically retained, as in tuberculosis or syphilis of the larynx or pharynx. Very little of the medicament comes in contact with the ulcerated surface, and that little is soon washed away. The objections to very frequent applications to these regions are obvious, and they more than balance any slight local curative effect the powder may have. Dry applications then to the mucous membrane of the air-tract, unless they can be mechanically retained, appear to offer no advantage except under unusual conditions.

2. *Inhalations* are distinguished from sprays in that they are drawn into the air-passages, while sprays are forced in by their own momentum, in part at least. The drugs applied by inhalation have active volatile principles. They are inhaled either (*a*) dry, (*b*) in steam obtained from their aqueous solution, or in warm vapors, or (*c*) in the smoke and warmth of combustion.

(*a*) The familiar "menthol inhaler," or the "smelling salts" so dear to women of an earlier generation, are examples of dry inhalations. Their essential action is that of an irritant; they create a temporary stimulation of the parts, but their repeate

or habitual use, like any continued irritation, must be injurious.

(*b*) Inhalations of steam or warm aqueous vapors: menthol, opium, and benzoin are frequently dissolved in boiling or warm water, and the steam or vapor charged with their volatile products is inhaled. The inhalation of steam from boiling water thus medicated is of benefit in acute rhinitis or laryngitis—particularly in rhinitis, in which the accessory sinuses are involved in the inflammation. In these cases the pain is probably in large part due to the confining of inflammatory secretion within the sinuses by the occlusion of their small orifices by the swollen mucous membrane. We know, from observation of their action in regions more accessible for observation, that heat and moisture favor a return to the normal of the circulation in the early stage of local inflammation. It is a reasonable inference that the hot steam has a similar action when brought in contact with the mucous membrane of the upper air-tract in sufficient amount, at a sufficiently high temperature, and for a sufficient length of time. These conditions are most easily obtained in the nasal chambers, and there the effects of steam inhalations are most positive. In the larynx and bronchial tree care is required to obtain a sufficient volume of saturated air at a sufficiently high temperature to affect the local circulation. The steam-atomizer does not supply the required heat and is an apparatus of but limited value. The croup-kettle and its modifications are much more efficient for supplying heat and moisture to the upper air-tract. Inhalations of air passed through warm medicated waters by means of a device like the chemists' wash-bottle have little value in my opinion. Neither the warmth nor the amount of the medicament supplied is sufficient. The warmth and moisture are the efficient agents where inhalations of steam or vapor are indicated. What drug is used in solution is of secondary importance. If sedatives are needed in addition, they can be administered internally for their general effect, or by other means of topical application, with much greater efficiency.

(*c*) The inhalation of smoke is used for therapeutic purposes almost exclusively to bring in contact with the mucous membrane of the air-tract the fumes of stramonium, tobacco, and that class of sedatives, to relieve asthmatic paroxysms. This method is efficient, but it has the disadvantage that its unpleasant fumes cannot be confined to the sufferer, nor often even to the room he occupies. Inhalations of finely atomized oily solutions of suitable medicaments may often be substituted to advantage for the inhalations of smoke.

3. *Gargles* have been used for centuries as a method of applying remedies to diseases of the tonsils and pharynx. So venerable a custom must be treated with respect, but, truth to tell, it is not, as usually practiced, of much efficiency. M. Mackenzie (Diseases of the Throat and Nose, ed. 1880, vol. i, p. 552) states that gargles do not bathe the parts behind the anterior pillar of the fauces—that is, the tonsils and pharynx are not touched by the medicated fluid. A practiced operator can, however, not only let the gargle lave a small portion of the pharyngeal wall and the tonsil, but he can flush slightly the posterior wall of the nasopharynx. A few experts, as they may be termed, can flush the fluid through the nasopharynx and the nasal passages and out at the anterior nares. With such training very efficient cleansing of this region can be accomplished by gargles of alkaline solutions. Very hot water held quietly in the back of the mouth and as far as possible into the pharynx may be of service in checking hemorrhage after tonsillotomy, and as a means of applying heat to a threatened peritonsillar abscess. As a means of applying medicaments to the fauces gargles are not of much service—contact is too short, and too uncertain, and the great motility of the parts and the free secretions remove from the surface and dilute very quickly whatever of the fluid may reach its destination. Furthermore, to be safe in case of accidental swallowing of the gargle it must be so dilute that its contained drug can have but little local effect. Guaiac is frequently given as a gargle in incipient tonsillitis. If the case is severe it is better to administer the guaiac by the stomach—though a heroic dose to take—and let it bathe the parts incidentally while it is being swallowed. Some of the benefit obtained from the use of gargles is due to the gymnastics of the parts involved in the act of gargling, and the advantage of this exercise of the mus-

cles of the Eustachian tube, which compose the soft palate, should not be overlooked in treating subacute inflammations of the middle ear.

4. Fluids passed in considerable volume over the surface are called *douches*. They may be propelled by piston or bulb syringes, or by atmospheric pressure. Their purpose is usually to cleanse from the surface accumulated secretion and epithelial débris. They are at times used to supply heat and moisture, as in irrigations of the auditory canal in earache. Alkalies and antiseptics such as sodium bicarbonate, common salt, borax, boric acid, and the numerous proprietary solutions of antiseptics, are the kinds of drugs usually applied in this manner. The solvent effect of alkaline solutions upon inspissated mucous secretions is well known. The antiseptics, when we can apply them in sufficient strength and for a sufficient length of time, diminish the tendency to decomposition of retained secretions; but this effect, under the usual conditions of their application, can be but small. More depends upon the thoroughness with which the secretions are removed than upon the particular antiseptic mixture which may be employed. Some of our text-books emphasize the danger of inducing inflammation of the middle ear by the use of douches in the nasal chambers. If too large a volume of fluid is not used, nor too much force in its application, there is little danger to the ears. A small urethral syringe may be used to douche the nasal chambers through the anterior nares. A larger syringe with a long curved tip is a satisfactory means to flush the nasopharynx and the nasal chambers from the back. The solution should be at least tepid for use in this way. The patient should be instructed to let the excess of fluid return from the nose—the head being bowed forward—and then to blow with the nose open, not pinched shut in the manner in which the nose is usually blown. Under no consideration, however, should the nose be irrigated with the fountain douche or any syringe which propels a large volume of fluid with considerable force. Failure of the fluid to escape freely from the nasal chambers, or an involuntary act of swallowing with its accompanying patency of the Eustachian tube, may be followed by infection and inflam-

5. *Sprays* have been used very extensively during the past thirty years in the treatment of diseases of the upper air-tract. The manufacture of atomizers has become a large industry, and their sale a source of revenue to the druggist. Our patients with disease of the nose or throat expect to spray and to be sprayed. Spraying aqueous or oily fluids upon the surface of the upper air-tract is undoubtedly the least irritating manner in which medicaments can be applied to this surface. Finely nebulized solutions penetrate also far into the recesses of this intricate region. But do the medicaments thus applied produce any pronounced effect upon the local conditions of disease? It may at once be stated that except in the larynx and trachea the spray is not so efficient a manner of cleansing the mucous surfaces as is the douche properly applied. We may therefore confine our consideration of the efficiency of nebulized solutions to those medicaments which are used to produce some change within the mucous membrane after absorption rather than upon its surface.

6. As *pigments*—medicaments applied by means of cotton pledgets upon suitable applicators—also are used usually to effect some change within the mucous membrane rather than upon its surface, it will economize time to consider the efficiency of pigments while we are discussing the value of medicated sprays.

In considering this question it is necessary to have clearly in mind the characteristics of the surface we propose to medicate locally; and also to have some conception of the manner in which we may reasonably expect our topical application to produce any effect. In health the mucous lining is essentially alike in structure throughout the body. According to Kyle it presents (1) an epithelial layer of varying thickness, (2) a basement membrane upon which the epithelial cells rest, and (3) the submucous connective tissue in which ramify the blood-vessels, lymphatics, and nerves essential to the life of the layers above. The rapidity with which fluid is absorbed is a physiological characteristic of mucous membranes. It is upon this rapidity of absorption that we depend for the effects of topical applications. We know that a strong solution of cocaine or of adrenalin may be applied

for a long period of time without apparent physiological effect. A similar solution applied to the nasal mucous membrane for but a few seconds will produce an appreciable effect. We have to do then with a surface of great capabilities as an absorbent. We may expect medicaments to act upon these absorbent mucous membranes (1) by cleansing the surface, (2) by irritating the surface and thus affecting the capillary circulation, and (3) by affecting the deeper layers of the mucous membranes through the influence of the drug absorbed through the epithelial layer.

1. As has been said, pigments are seldom used for cleansing purposes, and the spray is distinctly inferior in general use to the douche as a cleansing measure. So drugs which act in the manner indicated in our second and third classifications, either by surface irritation or by absorption, are alone efficient when applied by the spray or as a pigment.

2. Sprays are not so efficient for the application of irritants as our pigments unless the amount of stimulation required is slight. The spray cannot be confined to a limited region, and the medicament must therefore for safety have a degree of dilution which may interfere with its efficiency. The physician who has acquired sufficient dexterity can place the medicament as a pigment upon the spot desired in such strength as his judgment dictates with greater precision than is possible or safe by use of the spray. The spray may then be regarded as an adjunct in the use of stimulant topical applications rather than as the method of chief value. Even in the bronchial tree injections of weak oily solutions of volatile substances, such as menthol, camphor, and creosote, have been found in some cases to be followed by more relief of irritative cough and expectoration than had been secured by the inhalation of the same or stronger solutions in the form of a spray.

Having decided so much about the method of application, let us inquire what grounds we have to believe that the application of irritants to diseased mucous surfaces is of therapeutic service. The flush that follows immediately the application of heat—as after a hot foot-bath—exemplifies the effect upon the circulation of a superficial irritant. The redness produced by a mustard application shows a similar effect from volatile vegetable irritant. Rubbing produces the same dilatation of the superficial vessels. A chemical irritant does the same. If the skin reacts to irritant applications, still more may we expect the more sensitive and less protected mucous membranes to do so. The therapeutic effects which we may expect to obtain from irritant applications depend upon the condition of the surface to which we apply them. If an astringent or irritant be applied to a normal mucous membrane symptoms of the early stage of inflammation are produced—turgescence and serous discharge with increased sensitiveness of the surface. The tissue is responsive, and a decided effect upon its circulation and secretion is evident. If on the other hand the mucous membrane has undergone the sclerotic changes of long continued chronic congestion it is indeed a different tissue with which we have to deal. Kyle (Diseases of the Nose and Throat, ed., 1899, p. 57) describes thus the effects of chronic catarrhal inflammation: "Permanent alteration in the tissue will result from the infiltration of the submucosa by the leucocytes and serum. This embryonic tissue is produced by the proliferation of the migrated leucocytes and the fixed connective tissue cells, which, if nutrition be adequate, goes on to organization and the formation of a fibrous structure which alters the nutrition of the submucosa by contraction and impairs the functional activity of the mucous glands. . . . By organization of this inflamed exudate, together with a proliferation of the fixed connective tissue cells, the so-called hypertrophic condition is brought about." Here we have a condition upon which medicaments can have manifestly but little effect, and irritation cannot restore the function of disorganized tissue. It is then in the later stages of subacute inflammation that we may expect to obtain whatever beneficial influence irritant or astringent applications may possess, rather than in advanced chronic processes. I have frequently reflected in considering the results of the use of different topical applications, especially for stimulation, upon how much of the effect is due to the mechanical effects of the application—the massage of the parts which accompanies the manipulation of the cotton pledget. Can the superior efficacy of the direct ap-

plication of a silver salt to the inflamed larynx over its use as a spray be ascribed to the mechanical effect?

Tannic acid and the silver salts may be taken as the types of the vegetable and mineral astringents. Tannin is a pure astringent and irritant. In solution with glycerin it undoubtedly causes contraction of engorged superficial blood-vessels, and thus indirectly—and perhaps by direct action of the epithelium—tends to lessen mucous secretion. Its range of service is limited, however, and it is perhaps more used as a gargle for relaxation of the pharyngeal mucous membrane than for any other purpose. It causes irritation of the nasal mucous membrane, and is not used as a topical application to this region. Silver nitrate is a time-honored remedy, not now used so much nor so promiscuously in the treatment of diseases of the upper air-tract as formerly. When, however, it is thought advisable to stimulate the circulation by surface irritation, it is one of the most efficient means at our disposal, the strength being graduated to the purpose. Wood (Therapeutics, 3d ed., p. 50) says: "As an antiphlogistic, nitrate of silver acts not only as an astringent, but also in some way not clearly understood." It seems a not improbable hypothesis that the antiseptic properties of the silver may play a part in its action upon inflamed mucous surfaces. In the form of the nitrate salt the possible value of silver as an absorbable antiseptic is limited. The coagulation of the albumin of the epithelial cells which follows its use must check their vital absorbent powers. Some of the newer preparations of silver in which the mineral is in combination with an organic product are in theory, on account of their freedom from irritating effects, and on account of their absorbability, of greater activity as an antiseptic when applied upon living surfaces than is silver nitrate. However, our estimates of the value of topical applications are untrustworthy because they are based exclusively on clinical sequences which we can only infer to be a result of such applications. Who shall decide whether in a given case they are *post hoc* or *propter hoc?*

3. We are led by the consideration of this organic combination of silver directly to the subject of the topical use of drugs which act chiefly by their absorption into the tissues. That such absorption occurs very promptly we have seen in the use of cocaine and adrenalin. We know that cocaine is absorbed and enters the general circulation, for the application of even a weak solution to the nasal mucous membrane is followed in susceptible subjects by mental exhilaration and sleeplessness. We have no other drugs whose effects are so pronounced and sensational, so to speak, as those which follow topical applications of cocaine and adrenalin. Nebulized solutions of atropia inhaled in sufficient strength and quantity will, if repeated, produce in time mydriasis, but not from a momentary contact with the mucous surface. Our topical applications to the upper air-tract are usually made but momentarily, and probably are soon discharged from the nose or are carried into the stomach by the mucous and serous secretions. There is need of some laboratory experiments on the absorbability of medicaments by the nasal mucosa to make clear the foundation of our belief in the efficacy, when applied to the upper air-tract, of drugs which act by absorption. Clinical evidence, as we know, is not reliable.

Iodine and its salts are good types of the medicament used locally to influence favorably by absorption chronic inflammations of the nose and throat and Eustachian tubes. When a solution of iodine in glycerin is painted upon the nasal mucosa its excess for a short time stains the handkerchief. In a few moments it ceases to do so. Is the iodine absorbed, or compounded with the secretions into colorless salts, or merely washed from the surface by the secretions? It seems clear that iodine, which when taken internally acts favorably for the absorption of new and incompletely organized tissue, such as a syphilitic gumma, can have no appreciable effect upon advanced connective tissue infiltration such as occurs in the advanced stages of a chronic catarrhal inflammation. If useful at all when applied locally iodine is of service in the early stage only of a chronic inflammation. Here, however, the tissues are sodden with serous and round-cell exudation. Such a tissue is not a good absorbent. It is a common experience that cocaine has but a limited anesthetic effect—that it is not freely absorbed —when it is applied to mucous membranes

acutely inflamed, or which have been the seat of a recent operation. It is my opinion that a considerable portion of the effects which follow the topical application of solutions of iodine are due to the mechanical influence of the cotton pledget upon the circulation of the part.

What then are to be our conclusions about the effects of topical applications? Are we to accept a "therapeutic nihilism?" By no means. With the present limitations of our knowledge of the effects of topical applications too confident a skepticism is as unwarranted as too great credulity. We must admit, however, that the indications for the use of local medicaments in chronic inflammations of the upper air-passages are not so definite in many cases as are the indications for surgical interference. I would make the following tentative summary of the value of topical applications to the upper air-tract in a spirit the reverse of dogmatic:

1. Insufflation of powders is not an efficient form of local medication of the upper air-tract.

2. Inhalation of medicated steam is of service in the early stage of catarrhal inflammation—the higher the temperature and the saturation of the inhalation the greater is its efficiency. Dry inhalation of the volatile parts of drugs is of little utility. Inhalation of smoke from a smudge of suitable medicaments will usually control a paroxysm of asthma, but finely nebulized oils suitably medicated are more elegant when equally efficient.

3. Gargles are of little value unless the patient be directed and trained to use them in a way to give the greatest possible access to the pharynx and nasopharynx. They can be used occasionally as an efficient means to cleanse the nasopharynx and nasal chambers.

4. Douches are used chiefly to apply cleansing alkaline solutions to the nasal passages and the nasopharynx. Cleansing solutions are the most important topical applications in the upper air-tract. Much irritation is kept up by decomposed secretion retained mechanically in the various recesses of this region, and the douche is the most efficient means for its removal. Care must be taken that fluid be not used in this way in too large amount or with too much force lest infection be carried to the middle ear.

5. Drugs used for other than cleansing purposes act chiefly either as irritants to the surface of the mucous membrane or by absorption into its tissues. Such medicaments are best applied as pigments or sprays. Both irritants and absorbents in the hands of the physician should be applied usually as pigments directly to the region which it is desired to affect. This is true even within the larynx and the trachea. In the trachea the medicament may be injected through the glottis directly upon the tracheal walls. Sprays should be reserved usually for use by the patient during the intervals between local treatments by the physician, if it be desired to keep up a continuous influence of a drug.

6. We have positive evidence of the prompt absorption by the mucous lining of the air-tract of certain active drugs—as cocaine, adrenalin, stramonium, and atropine. Experiments in regard to the relative absorbability of various drugs by this route are needed to establish a more certain and rational local therapeutics of the nose and throat.

7. It is not improbable that the massage attending the application of pigments to the mucous surface is an important factor in producing reactions in the circulation and in the glandular secretions.

8. While we continue to lack experimental knowledge of the local effects in the upper air-tract of drugs topically applied, local therapeutics must remain inferior to surgery in accuracy of application and in efficiency in the treatment of most of the chronic diseases of the nose, ear, and throat.

MODERN HYPNOTICS.

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The use of drugs for the production of sleep dates back to remote antiquity. From such literature as has survived we know that the Egyptians, Assyrians, Hindus, Chinese, Greeks, and Romans were well acquainted with some of the hypnotics employed at the present time. All of the ancient sleep-producing agents belonged to the vegetable kingdom, among the most prominent being opium, canna-

bis indica, hyoscyamus, lettuce, and hops. Opium was in use as far back as the times of Hippocrates, and it is an interesting fact that Dioscorides, a Roman physician, speaks of the juice of lettuce being employed to adulterate opium. He states that lettuce when eaten at night induces sleep, and the custom even in vogue at the present time of taking lettuce toward the close of a meal probably originated from the observation of its soporific influence. Opium, however, constituted the most efficient remedy for sleeplessness among the ancients, and is still an indispensable hypnotic, although its field has been greatly restricted by the discovery and introduction of the synthetic sleep-producers, to the consideration of which this article is devoted.

The stress of modern life has greatly contributed to the increase of insomnia, and among its common causes are mental overwork and the worries and anxieties incident to the struggle for existence, late and irregular hours of sleep, and the prevalence of affections of the nervous system, such as hysteria, neurasthenia, and other neuroses.. It is to this universal prevalence of sleeplessness that the constant efforts of the pharmaceutical chemist to discover new hypnotics is to be directly ascribed, being, so to speak, a case of demand and supply.

Before discussing the hypnotics which modern chemistry has placed at the disposal of the physician, it might be of interest to say a few words on the subject of sleep in general. On studying the various theories that have been brought forward to explain the physiology of sleep no one can fail to be impressed by the want of unanimity on this question. In view of the analogy between sleep and the coma of epilepsy it has been attributed to hyperemia of the brain, compressing the conducting paths and thus cutting off communication with the outer world. Another explanation is that there is an inhibition of the activity of the neurons through interruptions of the nerve current variously produced. Duval thinks that during consciousness the dendrites are in contact, but become separated during sleep. A plausible and attractive theory is that of Preyer, according to which during the waking period certain products generated in the metabolism of the nerve centers are gradually accumulated, which finally produce sleep, acting, as it were, as physiological narcotics upon the sensorium. According to Pfluger sleep results from the exhaustion following the active metabolism of the waking period. Dr. H. Richardson, in a most instructive article published in *American Medicine* of April 18, 1903, reviews the different theories, and is inclined to believe that fatigue of the motor centers produces peripheral arterial dilatation with consequent anemia of the brain. He refers to some experiments made by Professor Howell of the Johns Hopkins Hospital, which show that a dilatation of the peripheral arteries takes place, with a consequent withdrawal of blood from the cerebral cortex. On account of this the amount of arterial blood passing through the brain is diminished, and there is a reduction of the metabolism of the brain cells. On the other hand, Leonard Hill believes that the actual cause of sleep is the increased proportion of venous blood and not a reduction in arterial pressure. Besides the fatigue of the vasomotor centers Howell also attributes sleep to the fatigue of those psychical areas of the brain which functionate most actively during wakefulness.

During natural sleep the frequency of respiration is reduced, the volume of inspired air diminished, and the breathing becomes almost entirely thoracic or costal (Richardson). According to the same author there is a decrease in the elimination of CO_2, and an increase in the absorption of oxygen. The heart action becomes weaker and slower, the peripheral arteries dilate, and there is a slight fall in temperature. Whether sensibility is increased or diminished during sleep is a moot question. It has been shown that there is no abolition of the reflexes or of the voluntary muscles, as demonstrated by the fact that a sleeping person will turn about in bed without waking. As Richardson justly says: "These differences of opinion are probably due to the methods of investigation; those who find sensibility deadened have observed conscious sensation, not sensibility, while those who say sensibility is increased have observed reflex acts." The factors concerned in the production of sleep are summarized by him in such an excellent manner that I cannot refrain from quoting his conclu-

sions: "There are three main factors in the production of sleep: (1) Diminution of irritability caused by fatigue of portions of the cortical area; (2) voluntary withdrawal of sensory and mental stimuli involved in the preparations for sleep; (3) diminished blood-supply to the brain owing to relaxation of tone in the arteries from fatigue of the vasomotor center, and the consequent reduction in the pressure and bulk of blood in the brain. If anemia of the brain were the sole cause of sleep, syncope would be sleep, but in syncope there is a loss of consciousness due to anemia, but there is not sleep.

"The nervous theories of sleep are defective because they do not point to a fundamental cause. Crichton Browne's remark that the arteries were made for the brain and not the brain for the arteries is very apt, as the amount of blood going to the brain is regulated by the functional activity of the nervous tissue. It is very evident from the foregoing that during sleep consciousness is arrested, so that sleep is the resting time of consciousness, but the arrest of consciousness is not necessarily sleep."

Owing to this lack of knowledge in regard to the physiology of sleep we are equally ignorant of the exact way in which sleep is produced by hypnotics. In studying their action we must distinguish between narcotics, which produce unconsciousness by intoxication, and the true hypnotics, in which the sleep resembles the normal, the former being represented by opium and the latter by chloral.

In view of the fact that the sleep produced by opium and its derivatives is often attended with undesirable by-effects and discomforts on awaking, and that during their prolonged administration the element of habituation must always be considered, they have been more and more reserved for cases of insomnia due to the presence of severe pain, and have been largely replaced in other forms of sleeplessness by the synthetic hypnotics. Before discussing these, it must be emphasized that none of them exactly reproduce the conditions present in normal sleep, although they approximate more closely to this standard than the narcotics.

It is to Liebreich that we owe our knowledge of the hypnotic effects of Chloral Hydrate, $CCl_3.CH(OH_2)$, the first of this series of drugs, which was introduced by him into medical practice in 1869. It was assumed by him that the hypnotic action of chloral was due to its decomposition into chloroform and formic acid in the blood through the alkalies present, but later v. Mering showed that this was not the case, and that chloral acted either as such or after being converted into trichlor-ethyl alcohol. Chloral occurs in colorless, transparent, rhomboidal crystals, having a burning taste, and is soluble in less than one part of water, as well as in alcohol, ether, chloroform, and in fixed oils. Like all derivatives of chloroform it has a depressing action upon the heart, numerous cases of fatal results being on record, and this has led to its being largely replaced by other and safer remedies. The toxic dose, however, differs greatly, 30 grains having been known to produce death, although as much as an ounce has been taken without fatal effects. In many respects the sleep produced by chloral resembles the normal, there being also a weakening of the heart action, a slowing of the respiration, a falling of blood-pressure, and anemia of the brain, but here the resemblance ends; for in other respects it acts as a toxic agent, especially when its use is continued for some time, as is shown by the symptoms of chloralism. Chloral finds no place in the modern treatment of persistent insomnia owing to the danger of habituation, and although an excellent hypnotic and sedative for occasional use, it must be avoided in the presence of feeble heart action.

Butyl Chloral Hydrate, $CH_3CHCl.CCl_2.CH(OH)_2$, exerts a powerful but very transient hypnotic action, and also produces marked gastric irritation. For these reasons it has never been able to compete with chloral hydrate.

Chemically related to chloral is Paraldehyde $(CCl_3.CHO)_3$, which was introduced by Cervello in 1883. It forms a clear fluid of an unpleasant taste and smell, which is soluble in water, alcohol, and ether. While having a less injurious action than chloral upon the circulatory apparatus, it has the disadvantages of a very repugnant taste, of causing irritation of the stomach, and of requiring to be administered in large doses. It acts more slowly than chloral, but, like the latter, is not free from risk of habituation. The dose ranges from 2.0 to 4.0 grammes.

After the introduction of paraldehyde

v. Mering determined the hypnotic properties of amylen hydrate, $(CH_3)_2.C.(C_2H_5)OH$. It is a colorless, limpid fluid of peculiar penetrating odor, similar to that of peppermint, with a boiling point between 99° and 103° C. It is soluble in 8 parts of water and miscible with alcohol, ether, and glycerin. Owing to its disagreeable taste and odor, and the large size of the dose, 2.0 to 4.0 grammes, it has never come into general use.

The next substitute for chloral hydrate was Chloralamid, or chloral-foramid, $CCl_3CH.OH.NH.COH$. It appears in the form of colorless crystals, soluble in 20 parts of cold water, and freely dissolving in alcohol. It slowly liberates chloral in the organism, and acts more feebly than the latter, sometimes giving rise to symptoms of intoxication and marked reduction of temperature.

The combination of chloral with ammonium, Chloral Ammonium ($CCl_3CH.OH.NH_2$), was introduced with the idea that the injurious depressing action of chloral upon the heart and respiration might be prevented. It forms colorless crystals, almost insoluble in water, and has been employed as a hypnotic in doses of 1.0 to 2.0 grammes, but only to a limited extent.

Chloralamid, $CCl_3CH\text{-}NH$, is a crystalline powder, almost insoluble in water, but easily so in alcohol. The dose is 1.0 to 4.0 grammes. While less depressing than chloral, it is not free from the risk of poisonous effects.

To obtain combinations which would split up into chloral in the system Henriot and Richet experimented with various chloralids, especially the lactic acid chloralid, but without producing active hypnotic substances. Heffter by a reaction between glucose and anhydrous chloral produced chloralose, $C_8H_{11}Cl_3O_6$. This is a crystalline bitter powder, soluble in 170 parts of cold water, but dissolving easily in alcohol and hot water. The dose ranges from 0.2 to 0.5 grammes. Chloralose, however, has never gained any prominence as a hypnotic, one of its chief disadvantages being its tendency to produce transient toxic effects, such as convulsions, mental disturbances, and profuse perspiration. It is very difficult to gauge the dose, as unpleasant by-effects are frequently observed from the administration of even

Henriot and Richet have combined chloral with pentose in place of glucose, with the production of arabino-chloralose and parabino-chloralose, but neither of these has been sufficiently tested to permit of any definite comments as to its hypnotic action.

A further investigation, with a view of obviating the unpleasant and injurious features of chloral, resulted in the discovery of dormiol and chloretone.

Dormiol is a condensation product of chloral with amylen hydrate, the latter constituent also possessing hypnotic powers. It is a colorless oily fluid, dissolving in alcohol, ether, and oils, and owing to its rather unpleasant taste is dispensed in gelatin capsules in a 50-per-cent solution. The dose varies from 1.0 to 1.5 grammes. It is claimed to be free from risk, and no by-effects have been reported. It is, however, yet too early for any definite statements on this point, as the literature is very limited.

Chloretone is a combination of chloroform and acetone, $CCl_3(CH_3)_2.C.OH$, and appears as a white crystalline powder, with a camphoraceous odor. It is only slightly soluble in water, but easily so in alcohol and ether. The dose ranges from 0.3 to 1.3 grammes. As a hypnotic chloretone has been shown to possess some advantages over chloral, although not completely devoid of unpleasant effects. Its use as a local anesthetic and antiseptic has, however, largely overshadowed its employment as a hypnotic.

In the *Therapeutische Monatshefte* for September, 1903, Dr. Impens has reported on a new hypnotic allied to the chloral group, which has been named Isopral. As has already been mentioned, v. Mering showed that chloral hydrate decomposed in the blood into tri-chlor-ethyl alcohol, to which its hypnotic influence was probably attributable. It was therefore thought that this substance might prove a useful soporific agent, and in the course of his studies on this subject Impens investigated the tri-chloro-iso-propyl-alcohol (Isopral), $C_3H_5OCl_3$, which he found to possess a number of advantages over chloral. Isopral is a crystalline powder, with a melting point of 49° C., soluble in water to the extent of 3.3 per cent, and dissolving in alcohol and ether. It has a camphoraceous odor and a somewhat pun-

clinical experiments thus far made isopral seems to be a very prompt and efficient hypnotic, which is much less toxic than chloral, and free from its depressing effect upon the heart and respiration in ordinary doses. In doses of 0.5 to 0.75 gramme it may be employed in all conditions in which chloral hydrate is indicated. The clinical evidence, however, is too meager to allow of any definite conclusions as to its future place in the hypnotic group.

SULPHONE GROUP.

This group is represented by trional, sulphonal, and tetronal. The last named, however, has never come into prominence. These substances, which were discovered by Baumann, are characterized particularly by their stability. Although unaffected by acids, alkalies, and oxidizing or reducing agents, they decompose in the organism, and then give rise to their hypnotic effects.

Little is known concerning the changes which trional and sulphonal undergo within the body, the theory generally accepted being that they split up into sulphonic acids. As both these drugs approximate in their physiological action it will be best to consider them together. Sulphonal, $(CH_3)_2C(SO_2C_2H_5)_2$, forms colorless, permanent crystals of a bitterish taste, with a melting point of 125° to 126° C., soluble in 100 parts of cold and 50 parts of boiling water. The average dose varies from 1.0 to 2.0 grammes. Trional, $C_2H_5CH_3C(SO_2C_2H_5)_2$, occurs in colorless, glistening, tabular crystals, with a melting point of 76° C., soluble in 320 parts of cold water and freely soluble in hot water, the dose being about the same as that of sulphonal.

Contrasting their action, sulphonal acts more slowly than trional, which is due to the fact that the latter is more easily absorbed and decomposed in the organism. The sleep produced by both resembles closely the normal as regards the heart action, arterial tension, respiration, and gaseous exchanges. There are certain precautions to be observed during their continued use which were formulated by Kast in his initial studies, and it is to the neglect of these that the sequelæ occasionally noted have been chiefly attributable. Both sulphonal and trional should be administered in some warm fluid, as in this cumulative effects are prevented. During the continued administration attention should be given to the bowels, so that the patient has at least one free movement a day, and the alkalinity of the blood should be increased by the administration of alkalies, such as bicarbonate of sodium or alkaline mineral waters. It has been suggested by Habermann that trional is advantageously administered in carbonated water, in which it is completely soluble. This form of administration is said by him to have the advantages of rapidity of effect and absence of all sequelæ.

In view of the universal use of sulphonal and trional as hypnotics during the past ten years it is remarkable that by-effects are exceedingly rare, and this is the more surprising on account of the frequently faulty method of administration. The only effect to which attention has been directed in recent years is the occurrence of hematoporphyrinuria, especially under the use of sulphonal. This condition, however, cannot be directly attributed to these hypnotics, but seems to be rather the result of an idiosyncrasy. A study of the cases reveals in most instances that the drugs had been given continuously without any of the precautions above mentioned. V. Mering, who some years ago made a very thorough investigation into this subject, concluded that when it does appear other factors must always coöperate, such as deficient nutrition, persisting depression of the general system, and other causes yet unknown. In his belief these drugs have been employed in too large doses, and he finds that 15 grains of trional is generally sufficient. During their continued administration he advises that they be employed in alternation with other hypnotics and with strict observance of the above precautions.

UREA GROUP.

The earliest example of this group was Ethyl Urethane, or ethyl carbamate, $(CO)NH_2OC_2H_5$, which was discovered by Schmiedeberg in 1885, and introduced by v. Jaksch into medicine. It forms colorless, odorless crystals, or scales, soluble in one part of water, and freely soluble in ether and alcohol. The dose ranges from 1.0 to 5.0 grammes. Although possessing all the elements of safety, urethane never came into vogue on account of the mild-

field is in cases of nervous insomnia, and even here it has been but little employed. Another disadvantage is that it frequently produces profuse diuresis, and thus disturbing sleep.

Methylurethane (urethylan) occurs in colorless plates, soluble in water and alcohol. It possesses hypnotic properties, but has never been sufficiently used to permit of any conclusions in regard to its value.

Hedonal, or methylpropylcarbinolurethane, $C_6H_{13}O_2N$, was discovered by Dreser as the outcome of a series of investigations having for their object the modification of urethane in such manner that while retaining its safety its hypnotic power would be increased. It is a white crystalline powder, almost insoluble in water, but dissolving in alcohol and ether. The dose varies from 1.0 to 2.0 grammes, but as much as 6.0 grammes have been given without unpleasant effects. There can be no doubt that hedonal is a material improvement over urethane, which it surpasses in efficiency and promptness of action, but it cannot compare in power with some of the hypnotics mentioned above. Its chief field of application is in the milder forms of sleeplessness, and also in mental diseases without marked excitement. In all these conditions it has proved a very useful, agreeable, and safe soporific.

The latest addition to the urea group of hypnotics is Veronal, which, judging from the literature so far published, seems to be a useful sleep-producing agent. Chemically it is diethylmalonylurea, $C_8H_{12}N_2O_3$, and forms a white crystalline powder, fusing at 191° C., soluble in about 12 parts of boiling water and in 145 parts of cold water. The dose varies from 0.5 to 1.0 gramme. It is recommended to be given in hot liquids. Since the preliminary report on this drug by Emil Fischer and v. Mering a considerable literature has already accumulated, in which attention is particularly drawn to its freedom from by-effects, the promptness and reliability of its action, and the normal character of the sleep produced. There can be no doubt that veronal marks the most important recent advance in the production of hypnotic agents, as is shown by the enthusiasm with which it has been taken up by some of the most eminent authorities. Its main indication is in the large field of simple insomnia, although it has been found of service in sleeplessness of nervous affections if not associated with marked excitement or pain. Professor Bartholow states that in many respects veronal resembles trional, and that it may be advantageously combined with the latter on the ground that they are logical allies and are capable of producing better results together than either used alone. The proportion recommended by him is two of veronal to one of trional.

While it might seem from the foregoing list of hypnotics that chemistry has amply provided remedies of this kind, this is not actually the case, since only comparatively few have been found worthy of a permanent place in the materia medica. Furthermore, it must be remembered that insomnia is of such varied origin that a hypnotic which succeeds in one case may utterly fail in another, and for this reason alone it is well to have a large number of efficient drugs of this kind from which to make a selection. This is especially true in the chronic forms of sleeplessness, in which it is frequently necessary to alternate the hypnotics in order to avoid habituation or the possibility of untoward effects. As already mentioned, the combination of two hypnotics sometimes acts more satisfactorily than the single administration of either alone, the one supplementing the action of the other.

It is problematical whether the long sought ideal hypnotic will ever be discovered, but in the meantime good progress is being made in the evolution of safe, efficient, and reliable drugs for the relief of the varied forms of insomnia which constitute so large a province in the practice of medicine.

SPLINT FOR FRACTURE OF FEMUR IN A CHILD.

By A. W. Mitchell, M.D.,
Georgetown, Ohio.

In view of the many splints described for the treatment of fractures of the femur it would seem superfluous to add another, but I have had such satisfaction in the use of the one described in this paper that I will risk presenting it to the profession at large, feeling that those who try it

will be pleased with it. It is especially adapted to children on account of the difficulty often experienced in controlling restlessness and securing the necessary coöperation of the patients in these cases.

The splint consists of three pieces—a

Splint for fracture of the femur in a child.

body, a thigh, and a leg piece. For a child five years old a board one-half inch thick and three or four inches wide is sufficient. Of course the body piece should be wider than the leg piece.

Measurements.—For the body piece measure from the axilla to the upper part of the great trochanter, which we will take to mark the hip-joint. For the thigh piece measure on the sound side from the trochanter to one or two inches (determined by the size of the patient) beyond the knee-joint. For the leg piece measure from the knee to the side of the foot below the ankle.

To Make the Splint.—For the body piece take a board of a size indicated above and cut a smooth round notch in one end, to fit up against the axilla, with horns to extend one above the other below the shoulder. Measure from this notch the distance already found from axilla to trochanter and bore a hole for a three-sixteenth-inch stove bolt. Cut the board off about 1½ inches below this hole. For the thigh piece, take a board somewhat longer than the measurement for that piece and bore a hole near each end, the distance between the holes corresponding with the thigh measurement. Cut each end about 1½ inches beyond the hole. For the leg piece, bore a hole near one end of a board as before and cut the other end off to correspond with the leg measurement. For neatness, round off all corners.

An auxiliary piece to hold the splint from rolling or slipping is of great value. For this, take a piece of galvanized iron or other similar material of a length sufficient to go about two-thirds around the body, and of a width equal to about two-thirds of the body measurement. Cover it with good strong muslin, allowing the ends to project beyond the metal sufficient to complete the distance around the body, and pin together. Bend the piece so that it will fit around the back of the patient. Fasten one end to the body piece with small wood-screws, or in any other convenient way, as near as possible to the lower end, place it in position over the back with the body piece in place, and further adjust until both fit properly. Remove it, bolt the three pieces together as indicated by the holes, using large washers in order to give sufficient support to the wood to make the joints rigid. Flex the pieces upon each other at the desired angle, which will be from 50 to 80 degrees, and tighten the bolts until the joints are rigid.

To Apply.—Pad the splint. Place the auxiliary piece around the back with the body piece in place at the side. Lay the patient on the back with the splint in place and secure it by pinning the muslin bandage tightly over the body. Flex the thigh and leg in line with the splint and make traction at the knee while manipulating the injured part until it is in proper position. Fasten the end of a roller bandage to the end of the leg piece at the ankle and bandage securely, but not too tight, to the knee, all the time making traction at that point. Bandage more securely at the knee, and continue the bandage up the thigh to the body and fasten. Smooth everything nicely and block up under the knees with a small pillow, or better, a cigar-box, with a small salt bag filled with bran, so that the patient will lie easily and comfortably. If the nature of the injury requires abduction, make the thigh piece out of a thicker board and bevel the upper end. Traction is maintained by the extra length of the thigh piece. If it is desirable to apply Buck's extension it may be done by loosening the bolts, carefully straightening out the splint and limb together, and applying it according to established rules. For calls of nature, bathing, dressing, etc., the nurse can carry or move the patient around with perfect ease and security by placing one arm under the knees and the other under the back, always in such cases being careful to observe that the joints are rigid.

Among the points to which especial attention might be called are:

1. The simplicity of this apparatus.
2. The ease with which it is applied and the help it affords the operator while adjusting the fracture.
3. Its adjustability, which allows changes in the position of the limb and joints while still holding the fracture secure.
4. It allows more movement in a restless child, with comparative safety, than any other splint of which I know.
5. The ease with which the nurse can manage the patient for hygienic purposes.

TUBERCULOSIS AND THE ROENTGEN RAY.

By Wm. S. Newcomet, M.D.,
Philadelphia.

The use of the *x*-ray in tuberculous affections may be considered from two different standpoints: the first from its employment in diagnosis; and secondly, its value in therapeutics. Both have by some enthusiasts been much overrated, but the medical profession in general have little conception of their scope.

In regard to the value of the rays in diagnosis in certain fields, such as bone and joint diseases, the profession at large seem to have a fair conception as to their limitations, and most of us are familiar with the radiographs that show with considerable accuracy the amount of damage done by the disease. Scarcely an operation of this character is performed without a previous *x*-ray examination, which acts as a guide to the operator, more or less, and in some instances shows processes that would otherwise be overlooked.

Considerable progress has been made lately in the examination of the chest by what might be called instantaneous radiography, and by this means we can verify the results made by other methods. The use of the fluoroscope, however, would be the ideal method to view the chest, for by this means we are able to see the conditions as they exist, under inspiration and expiration or at rest, and from all positions; you are able to see just what you hear in your stethoscope; you see jerky breathing, pus in cavities, or the dark spots of consolidation, etc. But unfortunately the use of this method inflicts considerable punishment upon the observer, and those who have pursued very much work in this line often suffer from severe burns in consequence. Almost any novice is able to outline the gross pathologic changes in the lung structure, but it requires considerable practice to notice the minor ones. Therefore, on account of the danger to the operator while making these examinations the development of the radiograph by certain standards is being carefully studied by some, but usually the radiograph of the chest is very much like a photograph of some pathologic specimen; although it is not open to the objection of distorted imagination, as claimed by some for examinations made by the fluoroscope.

One strong point in favor of the *x*-ray examination of the chest is that it will exactly localize a certain lesion; this is not always possible by the ordinary methods of percussion and auscultation, as it is well known that the tension of the tissues will often transmit sounds contrary to the direction that they would take under ordinary circumstances.

Regarding the use of the *x*-ray for diagnostic purposes, it might be said in a general way that wherever the diseased condition differs in density from the surrounding normal structures, that process should show by the methods under consideration.

The results obtained by the use of the *x*-ray in the treatment of the localized processes of tuberculosis are rather variable but depend largely upon surrounding conditions, and from the clinical observation of a number of cases the following deductions might be drawn: When the ulceration is not caused by some mechanical irritation, such as necrosed bone, pockets of pus, or the constant movement of fascia, the *x*-ray will usually prove beneficial; and in suitable cases of enlarged tuberculous glands, that have not passed to the stage where they have broken down, if the *x*-ray is carefully applied they will be absorbed to a great extent, but it is doubtful if they will wholly disappear, or be restored to their normal condition.

The cases in this paper were a series in which the *x*-ray was the only agent employed. This course, however, is not to

be recommended, as it was only adopted with the idea of deriving an unbiased opinion as to its effects, and while in several instances the results were quite startling, it is by no means a specific or general panacea, and should under all circumstances be used with the greatest caution and only in favorable cases.

Although we have had very encouraging results in most tuberculous conditions, in its commonest and most fatal form, that of the chest, the results have been entirely negative. Perhaps the technique used was not perfect, but unfortunately the conditions as they are presented in these cases are not ideal for this form of treatment; and if in the future the *x*-ray should be found to be of any value in chest diseases, it will be only in the early cases, for after the lung conditions have broken down the mechanical opposition to healing will no doubt far outdo any good the *x*-ray might by chance relieve.

If we are not able to benefit the tuberculous processes of the chest we have found that it will relieve a most distressing complication, the ulceration of the larynx. About a year ago a series of three cases were treated in coöperation with Dr. Off. In one the lung symptoms were so far advanced that it was deemed inexpedient to continue treatment after the first exposure. In the other two, inside of two weeks there was a complete disappearance of pain and dysphagia, but as there was considerable destruction of tissue in the surrounding parts the treatment had no effect upon the voice. One of these patients, who had formerly been under the care of Dr. Freeman, had very little lung involvement, and when last seen by Dr. Off the laryngeal condition appeared to be perfectly healthy. The other unfortunate has since succumbed to his lung condition. The treatment of these cases is rather tedious; they received thirty-nine and thirty-five exposures respectively, during the months of March, April, May, and June, each being from five to ten minutes' duration, and during the last two months the chest of the latter was also exposed, with no appreciable effect. The laryngeal exposures were made externally upon the neck; the only ill effect was the loss of hair and a tanning of the skin.

The operation upon cases of cervical adenitis is unfortunately often followed by a long period of ulcerating sinuses which are always difficult to treat, and a short history of the following cases will serve to illustrate the effects of the *x*-ray treatment upon this class:

H. B., eleven years old. Two months previously he had undergone an operation for the removal of a large mass of glands on the left side of the neck, which left a large open wound. The boy was difficult to manage, but received twelve treatments, when they were discontinued. No apparent result followed.

J. D., eighteen years old; female. One exposure; no result.

J. O'C., male, fifteen years of age. In the early part of 1900 he developed an enlarged gland under the angle of the left jaw. As there was no apparent benefit from local applications it was decided to remove it by operation. A few months later another mass formed about one inch below the site of the former, which at that time was still discharging. About November, 1902, the second mass was removed, and this one also formed a sinus, although the other one closed to some extent after the second gland was removed. This condition continued until 1903, when the *x*-rays were applied, and by September both sinuses had closed. In December one of the scars broke down, but two applications of nitrate of silver has again closed them.

Maggie M., sixteen years old, tall, thin, and poorly nourished. In the fall of 1901 she had undergone a most radical operation for the removal of the glands on both sides of the neck. On the right side there was a large N-shaped scar, the total length of which was nine inches, while on the left side it was V-shaped and measured seven inches. About four inches of the scar on the right side and three on the left side were ulcerated, at the infraclavicular notch, and two other places on the left were ulcerated sinuses. From January 16 to February 25, 1903, twelve *x*-ray treatments of ten minutes each were given, which was followed by healing of all the sinuses. In May she again returned with a large abscess in the left axilla, and the old sinus at the infraclavicular notch was also open.

K. H., female, twenty-three years of age. In August of 1902 a radical operation for the removal of a number of

enlarged cervical glands. For two years previously she had suffered from a number of abscesses about the face and neck; and in December of 1902 she still had a number of discharging sinuses on both sides of the neck. In this case twelve treatments were given, and since that time the local condition has remained healed.

Of the four other cases of this series, two were not treated, as the glands were soft and fluctuating, with no open sinus; another, a case of tuberculous ulceration of the ankle-joint, was treated with no result, and subsequent operation showed an extensive necrosis of the bone. The last case was one of inflamed glands of the neck, probably tuberculous; the history is as follows:

A. M. C., female, thirty years of age. Under the angle of the jaw on the right side were two enlarged glands about the size of pigeon's eggs, while on the left side was a gland about the size of a hen's egg. Treatment began on May 15 on the left side, and was continued until the middle of June, when the other side was exposed and treatment continued until the middle of August. Fifteen treatments of ten minutes each were given to each side. The improvement was quite marked, and at present the glands are scarcely larger than hazelnuts.

In conclusion it might be said that in suitable cases the use of the *x*-ray will prove a valuable adjunct to their treatment, and when it is employed should always be in coöperation with proper hygiene and other standard remedies.

THE ADULTERATION OF COD-LIVER OIL.

The *Lancet* of February 6, 1904, states that it is indebted to Mr. E. J. Parry, B.Sc, F.I.C., for a communication in which he states that the great scarcity of cod-liver oil during the past year or so, accompanied by famine prices on the market, has been responsible for an enormous amount of adulteration in this product. Various adulterants have from time to time been recorded, but at the present time "low-grade" fish oils other than the genuine cod-liver oil are almost universally found in adulterated samples. There is at present, Mr. Parry states, and he is a well known authority on the subject, a very brisk demand for cod-liver oil barrels, and he has been able to trace enormous numbers in one place. The original marks are obliterated, and the barrels are repainted and remarked, and eventually three barrels of genuine cod-liver oil reappear on the market as five, and the stock of shark oil is correspondingly diminished. Such transactions he has been able to trace from beginning to end. As regards examination a trained nose is of considerable help. The tests given by the British Pharmacopœia are practically useless except in so far as they bring the adulterants within a certain group on account of a specific gravity limit, and they exclude oils which freeze at 32° F. in two hours. Again, the specific gravity, the saponification value, and the iodine absorption figure give no useful indications except when taken in conjunction with other figures. The amount of free acid present in the samples, the index of refraction, and certain color reactions do give in some cases most valuable information. Mr. Parry has found that of the fifty-eight samples examined by him during the past year, twenty-one proved to be pure, nine doubtful, and twenty-eight were clearly adulterated.

Altogether the results show that there is an enormous amount of adulterated cod-liver oil on the market, and Mr. Parry's experience is in complete agreement with that of other analysts. A large proportion of this adulterated oil is undoubtedly used in preparations of cod-liver oil, such as cod-liver oil and malt extract and emulsions. The percentage of cod-liver oil in such preparations has been found to be as low as from 7 to 9. Mr. Parry suggests that this adulteration of cod-liver oil gives an admirable opening to physicians to consider, in view of the difficulty of depending on the supplies of cod-liver oil, whether its value as a medicine is really existent in any special sense, or whether it is more or less traditional and therefore much exaggerated; or, in other words, whether it is not as a fat of animal origin that cod-liver oil enjoys a reputation which it ought to share with other animal fats. It is open to question whether cod-liver oil has any specific virtues other than those of an easily digested fat.

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Leading Articles.

THE ABUSE OF ETHER IN THE EARLY STAGES OF ITS ADMINISTRATION.

On a number of occasions we have called attention to improper methods of administering anesthetics. In the case of chloroform most physicians are so timid and fearful of its lethal properties that they use it with respect. But in the case of ether it is regarded as so innocuous that too frequently the surgeon is content to permit a novice to administer the drug, and to pay little attention to the manner in which it is administered, if only the patient is quiet during the performance of the operative procedure. The writer of this editorial is convinced that those who have administered ether in his presence rank as high as any other class of anesthetizers that employ this drug, yet in many cases the ether has been undoubtedly abused during the early stages of its employment.

The fact cannot be too strongly emphasized that the influence of ether is not alone exercised during the period in which the patient is actually anesthetic. As a matter of fact its effects continue for a number of hours after the patient has returned to consciousness, and not rarely last for days and even for weeks. These effects, it is true, cannot be considered as directly due to ether, but they are due in considerable degree to the hurtful manner in which the drug has been administered.

It is both amusing and pathetic to notice the mental attitude of the physician who finds himself about to be the victim of the surgeon's knife, and no one is more strenuous in demanding that the anesthetic shall be given carefully than he.

The moral of this editorial note can best be pointed out by a recent incident in the writer's experience. A nervous child of four years, about to be operated upon for enlarged adenoids and tonsils, was taken in charge by one who is considered a very skilled anesthetizer, and placed upon the operating table without any manifestation of fear on the patient's part, the child being too young to appreciate his surroundings. The anesthetizer, after having poured the ether upon an Allis inhaler, placed it directly against the patient's face, with the result that in an instant the child changed from a contented, smiling patient to a frightened, screaming, and anxious child. Not only was the child frightened by the inhaler being placed over his face, but the sudden rush of ether vapor overwhelmed him and caused spasm of his respiratory muscles. The ether inhaler was removed by another physician, who then held it above the child's face in such a way that the ether vapor gradually sank until it reached the child's respiratory passages, which speedily caused the child to pass under the influence of the anesthetic without any nervous shock, without any cyanosis, and in peace and comfort. Suggestion as to toys of which the child was fond gave him pleasant dreams as he sank into unconsciousness, instead of dreams of terror produced by the too hasty application of the ether.

There are two classes of physicians who will recognize the importance of this editorial note. One class is composed of those physicians who have within recent years taken ether and have had the disagreeable suffocative sensations produced

by its early inhalation. The other class is composed of those physicians who are well enough trained to recognize the symptoms of nervous shock for days and weeks after operative procedures. It is the constant experience of the writer that adults and children often require prolonged treatment in order to obtain perfect health after an operation, and we are convinced that if the ether was administred with more care these manifestations of nervous shock would be greatly diminished. It would be an excellent thing for many patients if the professional and temporary anesthetizer was required to take ether before an operation for the purpose of impressing upon him the sensations which are felt by those who have to take it in order that surgical procedures may be carried out.

THE INTRASPINAL INJECTION OF TETANUS ANTITOXIN.

On previous occasions we have pointed out in the editorial columns of the THERAPEUTIC GAZETTE that some of the statistics which have been published in regard to the value of antitetanic serum in tetanus were not to be relied upon because the reporter had not separated his cases of acute and subacute tetanus. In the acute cases the mortality is about twice as great as in the subacute or chronic cases, and therefore the use of antitoxin in one set of cases might give results which seemed exceedingly good; whereas its employment in another class of cases might produce results so bad as to almost condemn its use. Again, it must be remembered that the great difficulty in the employment of tetanus antitoxin lies in the fact that the symptoms of tetanus are not developed until a considerable period of time has elapsed after inoculation. During this period the tetanus bacilli have rapidly multiplied, and the onset of the symptoms is a sign that the poison which they have formed has already attacked the nervous protoplasm. Furthermore, it has been found that this tetanus antitoxin unites so closely with nerve cells that it is practically impossible to dislodge it, and that once having been so united it speedily exercises its destructive influences. It follows, therefore, in the majority of cases, that by the time the antitetanic serum is given the damage is done and is irreparable. In the hope that some time might be saved, it has been suggested that the patient be trephined, and the tetanus antitoxin be injected into the brain. More recently it has been suggested that intraspinal injections of antitoxin shall be resorted to.

In the London *Lancet* of March 5, 1904, Wallace and Sargent, who are attached to the staff of St. Thomas's Hospital, report four cases of acute tetanus which they have treated by the injection of antitoxin into the spinal theca. In one of these cases the injury had occurred seventeen days before admission, and the tetanic symptoms had begun nine days after the injury. The patient was discharged well on the twenty-fourth day after her admission. In the second case the symptoms began eleven days after injury, and the patient was discharged on the twenty-eighth day cured. In the third case, in which from three to six days elapsed before the development of the symptoms, a severe general convulsive attack occurred; recovery ultimately took place, and the stiffness entirely disappeared after the forty-second day. The fourth case was injured six days before he presented himself for treatment, was evidently severely infected, and died within a few hours of his admission to the hospital. The recovery of three out of four cases cannot be considered as of great statistical value, and we doubt very much whether this method of administering the antitoxin deserves the entire credit for the recovery of the three individuals who seemed to benefit from its use. Wallace and Sargent quote Penna as having had five cases treated in this manner with three recoveries.

While it is true that the intraspinal injection of the antitoxin does bring it in immediate contact with those portions of the nervous system which are chiefly involved in this infection, it is also to be remembered that even this rapid method of employing the remedy brings it in contact with the nerve cells a considerable time after they have united with the poison. It would seem, however, that the intraspinal has something in its favor as compared to the intracerebral method, for the latter requires trephining, and it is upon the spinal cord rather than upon the brain that the tetanus toxin seems to expend its chief energy.

ANOTHER USE OF ADRENALIN.

Adrenalin has already proved itself a remedy of such extraordinary power in a number of conditions over which we had little control before it was introduced into the materia medica, that the medical journals of the past few years have been filled with reports indicating the conditions and the methods in which it may be used to bring about the best results. As with all new remedies it has been tried in some conditions and found wanting, because its physiological action was not indicated by the pathological condition which was present. On the other hand, in a very large number of conditions it has proved a remedy of very extraordinary power, and it has undoubtedly reached a point in its history which guarantees its employment as a reliable remedy for many years to come. Further than this it is probable that additional conditions will be found in which it can be employed with advantage. In the *British Medical Journal* of March 19, 1904, Dr. James Barr, of Liverpool, who has been an active clinician for many years, publishes a clinical lecture in which he speaks in the most eulogistic terms of the employment of adrenalin in a condition in which we have not heard of its employment hitherto, namely, its injection into serous cavities, when those serous cavities have been filled with effusion, with the object of preventing a reaccumulation of the liquid. Thus, in a case of abdominal carcinoma with secondary involvement of the right pleura and pleural effusion which had been tapped again and again, he obtained excellent results from injecting one drachm of the 1:1000 solution of adrenalin chloride into the pleural cavity. He states that there was no further outpouring of fluid, that no further tapping was required, and that the old lady passed the remainder of her life in comparative comfort, although of course the underlying condition was incurable. He also recommends the same line of treatment in cases of ascites due to hepatic cirrhosis. It is hard to see exactly how the drug can do much good in this condition when injected into the peritoneal cavity, as one would suppose that its action would be too fleeting to produce any permanent effect. In one of his cases of peritoneal effusion, after withdrawing the liquid he injected two drachms of adrenalin chloride solution with some aseptic air without the production of any symptoms which were in any way evil in their character. Further, Dr. Barr asserts that he has employed it with success not only in peritoneal effusions, but in cases of pericarditis with effusion.

PREVENTION OF THE SPREAD OF VENEREAL DISEASES.

Since practically all venereal diseases are incident to prostitution, the first step in their prevention must necessarily be taken in the direction of either regulating or entirely suppressing harlotry. The entire history of efforts of suppression seems to prove conclusively that such, even when proposed with all sincerity, and enforced with apparently adequate power, are wholly unavailing.

The testimony in regard to the efficiency of efforts at regulation, having for their end the legalizing of prostitution, with registration of the women pursuing this trade, and frequent medical inspection, is extremely conflicting. The experience of Paris is certainly not encouraging, even from a purely sanitary standpoint. In Cincinnati the Board of Health exercises control over every prostitute, requiring registration, periodical examination, police oversight, and compulsory hospital treatment or workhouse sentence. Heidingsfeld (*Journal of the American Medical Association,* Jan. 30, 1904) states that all these regulative measures have been carefully thought out and rigidly enforced, but that he has failed to note any beneficial effects. He believes that venereal disease is as frequent and that it exists in as grave a form as was the case prior to preventive measures, and he notes a larger number of clinical venereal cases tracing their origin to non-control clandestine prostitutes. In regard to private practice during the years of control there has been a progressive increase of the number of venereal cases as contrasted with those suffering from dermatological affections. It is surprising, moreover, the largeness of the number of venereal cases that can be traced to control prostitutes, although most of the cases, even in private practice, are contracted outside its pale.

This observer states that if the system

were simply ineffective and powerless to show results, he would not criticize it unfavorably, but he is assured that its influence in other directions is pernicious and that it effects material harm. Thus control, with periodical examinations, gives the laity a false sense of security. A certificate, issued in diploma-like form, must be exhibited conspicuously in the room occupied by the person to whom such a certificate is issued. The issuance of such a certificate is pure deception and fraud, as is evident from the innumerable infections which can be traced to the possessors. Heidingsfeld states that 87 cases occurred in his own practice in seven months. It is generally stated that from one-half to one-third of the prostitutes, even in control cities, are constantly infected with gonorrhea, and that eighty per cent of them are infected with syphilis during the first year in that life. If this be true, Heidingsfeld holds it criminal to grant to this highly contagious class of individuals a certificate reading, "We have made a careful examination of said —— and find her free from any venereal or contagious disease." The power exercised, also, over the unfortunate prostitutes creates opportunities for blackmail, and tends to materially diminish the number of controls and to increase the more numerous and more dangerous clandestines.

Heidingsfeld, whilst rejecting suppression as impossible and control as impracticable, makes a number of useful suggestions, having for their end the prevention of the spread of venereal disease. First and foremost he considers a thorough education of the youth essential, and would make it an integral part of their general school life, showing them the dangers which attend improper relations; and that abstinence and continence are compatible with general health and well-being. Next is suggested a vigorous suppression of abortionists. Other measures considered serviceable are systematic investigation into the self-supporting character of female industrial life, with the assurance of remuneration commensurate with proper living and being, and the enactment of legislation for the salutary segregation of public and clandestine prostitutes, and its enforcement within bounds of propriety, justice, and reason. Heidingsfeld would abolish common drinking cups and utensils, and promote education along the lines of prophylaxis in regard to the dangerously unclean dental, manicure, chiropodist, and surgical instruments, and of the prolonged infectious character of venereal diseases.

Public opinion in most of our communities is unalterably opposed to legal recognition of prostitutes, and hence would not tolerate measures for regulation; but since it has been abundantly shown that venereal diseases are responsible for as much crippling and death as tuberculosis, all measures which have for their end the lessening of the spread of these diseases are to be considered. Although evidence has been advanced on both sides of this question, regulation is, to say the least, inefficient. Perhaps the most potent means of lessening the evil lies in the line of education. Next after that, the enforcement of strict police regulations to prevent street solicitation. This is practicable, and would have for its end the protection of those least able to care for themselves. Finally, segregation of harlots in a more or less inaccessible part of the city would seem to be not only possible, but an end which could have none but good effects.

INFECTIOUS OSTEOMYELITIS.

This affection, due to infection of the bone-marrow by pyogenic organisms, usually the staphylococcus pyogenes aureus, and as a rule secondary to suppurative lesions elsewhere in the body, such as a furuncle or carbuncle, is predisposed to by fatigue, exposure to wet or cold, contusions, or an attack of infectious disease, such as measles, scarlet fever, pneumonia, or typhoid fever. The inflammation nearly always begins in the diaphysis of the long bones, as a rule in those of children or adolescents. The femur and tibia are the bones commonly attacked. Next in order comes the humerus, though no bone is really exempt. The primary infection is always in the bone-marrow; the bony trabeculæ and the cortex are destroyed only secondarily. The infection usually extends quite early through the dense cortical bone, and produces a subperiosteal abscess. It is checked by an epiphyseal line; exceptionally it may extend through

the epiphyseal line to the joint, or there may be destruction of the epiphyseal line and a separation of shaft and femur—*i.e.*, a spontaneous fracture. If the periosteum is separated from the cortex about its entire circumference, necrosis of the entire cortical circumference, at least in its superficial layers, may occur. If internally the entire circumference of the endosteum is destroyed, the entire inner circumference of the cortex may become necrotic.

The affection is characterized by sudden pain, rapidly becoming extremely severe, greatly aggravated by percussion or pressure. Swelling of the soft parts develops early, as evinced by pitting on pressure. Constitutional symptoms are pronounced from the first. Exceptionally the affection begins with moderate pain, and is accompanied by swelling of adjacent joints, thus diverting attention from the real focus of infection. This inflammation must be distinguished from acute tuberculosis and the various forms of rheumatism. Tuberculosis nearly always begins in the epiphyses of the long bones, whilst rheumatism attacks, as a rule, the joints.

The treatment demands an early and adequate drainage. This necessarily implies the removal of a good-sized button of bone. Nichols (*Journal of the American Medical Association,* Feb. 13, 1904) advises that this should not be less than one-half inch in diameter, and if pus escapes he believes that the hole should be enlarged along the shaft with rongeur forceps and chisel as long as pus can be found in the marrow. In early cases a layer of cortical bone one-half inch or more wide and two or three inches long may suffice. In advanced cases a lid of bone should be removed from the entire length of the shaft.

Since the integrity of the endosteum is essential for the vitality of the inner layer of the cortex, curettage of the marrow is contraindicated.

In the subacute stage, with necrotic shaft, and proliferation of the periosteum, the sequestra should be removed early. Indeed, Nichols states that the chief object of his admirable paper is to emphasize and illustrate the fact that by early removal of such sequestra at a secondary operation, and by approximation of the inner surfaces of the proliferating, partly ossified periosteum, a new shaft of periosteal bone will be produced with constant regularity, which joins the epiphyses or whatever portion of the sound shaft is left, occupies the position of the original shaft, and heals without sequestra or sinuses, giving perfect functional results.

The time for the removal of the sequestra is not during the very acute stage, since the periosteum is then thin and difficult to manipulate. About the eighth or tenth week, after drainage of acute infection, the periosteal proliferation and ossification have advanced to such a stage as to make certain the bone-forming ability of the membrane, and to make it sufficiently rigid to allow of accurate manipulations, without ossification being so advanced as to produce a rigid, non-plastic bony tube.

The presence of well marked ossification can be accurately determined by the removal and examination of small bits of the periosteum from the edge of a sinus. A rough test is offered by thrusting a needle through the periosteum at the edge of a sinus. If new periosteal bone has been formed, the needle passes through the soft tissue, then through a crackling, thin layer of delicate bone, and brings up against the dense shell of the necrotic shaft. When this thin, crackling periosteal layer is felt, the periosteum is at the best stage for the performance of the operation. After one or two weeks of careful disinfection the necrotic shaft is exposed by an incision passing through the sinus, if practicable. The periosteum is stripped up, care being taken not to puncture it.

Infiltrated tissues are disinfected with a 95-per-cent carbolic solution, applied for a few seconds, and followed by swabbing with alcohol. The periosteum is then folded together in such a way as to make a flattened riband or tape, approximating inner surface to inner surface. The edges of this riband are secured to each other by chromic catgut. The sinuses of the soft tissue are curetted and trimmed, and the incision of the soft parts is closed by animal sutures, a plaster-of-Paris bandage completing the dressing. Drainage is secured by small gauze wicks, and the suturing is not very close. On the second or third day there is usually some evidence of septic absorption. Healing by first intention is, of course, exceptional. A sinus commonly develops for a time, usually

near the epiphyses or at the junction of the periosteum and shaft. The first dressing is performed usually on the third day.

Nichols reports many instructive cases showing the admirable functional results to be obtained by the treatment he outlines.

Reports on Therapeutic Progress

THE TREATMENT OF MUCOMEMBRANOUS ENTEROCOLITIS.

EWALD in an article in *American Medicine* of February 13, 1904, states that in the therapy of this state we have the following problems to solve:

1. The intestines must be emptied without the use of strong, and especially without saline, agents.
2. The pain should be overcome without the use of narcotics.
3. The sequels of the obstipation—*i.e.*, gas formation, dyspeptic symptoms, and autointoxication—must be obviated.

To accomplish these things a great many methods may be employed, but especially recommended are vegetable laxatives, such as senna, castor oil, flaxseed, etc., and proper regulation of the diet. Laxatives are objectionable because they must be given in increasing doses, and are not then followed by a cure. Injections of oil, as recommeded by Kussmaul, are specially valuable and are given as follows: 300 to 500 cubic centimeters of slightly warmed linseed, olive, or sesame oil is injected high into the rectum by means of a soft-rubber tube (not a hard-rubber cannula) while the patient lies on the left side. The injection should be made slowly, the patient remaining on the left side for about ten minutes, and the enema should be retained as long as possible. It is only after this means has failed to produce a good movement that catharsis should be resorted to and some aperient mineral water be given.

Diet in all these cases plays a very important part in the treatment. When we remember that this state is most frequently associated with obstipation, it is evident that food having some cathartic action is desirable. Remembering also that some patients are not constipated it is easy to see that a fixed diet will not suit all instances. If the trouble is characterized by obstipation which is due to a simple intestinal inactivity or primary weakness of the intestinal muscles, or secondary hysteric or neurasthenic disturbances of innervation, the diet would naturally be different from that in a case in which the disturbance was due to some mechanical hindrance, as from the uterus or adnexa.

Recommended as specially efficacious when simple constipation is present are the coarse breads, as black bread, Graham bread, and rye bread; fats, as butter, cream, or lard; salads with oil, fatty sauces, gravies; coarse vegetables of the cabbage family; curded milk with plenty of sugar; fruit juices, figs, syrup, jams, prunes, stewed fruits; and fresh vegetables of all kinds. If taken in the morning on an empty stomach, the following are frequently of value: Strawberries, raspberries, currants with milk or cream, or gooseberries, oranges, melons, grapefruit, and apples. This diet acts not so much through the mechanical irritation of the coarse flour and seeds contained in it, as through the formation of gases and acids, which stimulate peristalsis.

Most of these dietetic measures are known to the laity, and especially to the patients themselves, who have for a long time tried various foods and remedies for their trouble. The success of such a diet depends upon the exactness with which it is followed, for it can be hindered by the eating of various constipating foods, and such things naturally should be prohibited.

Such a regimen may be either gradually or immediately instituted. It happens unfortunately, according to the experience of the writer, that with such dietetic measures alone the results are not satisfactory, and that other means must be used in order to bring about the desired cure. For this purpose, besides the diet recommended, it is well to employ some of the following measures: Mineral waters, massage, electricity, room gymnastics, or some of the various cold water treatments, especially the Scotch or alternating hot and cold douches. It is self-evident that such a diet is not practical in all cases, particularly those in which the action of the stomach is disturbed

through food digested with difficulty. The patients with spastic constipation are also made worse by such coarse diet. When a spastic constipation exists and its nature is understood, opium and belladonna internally, or in combination as suppositories, employed along with injections of oil, work very well. When these measures, plus a coarse diet, produce a cure in a case with spastic constipation, it is in spite of the diet and not because of it.

It is only rational that in these last named cases a mild, non-irritating diet should be instituted, which through its non-irritating qualities produces a laxative effect. This diet may be followed whenever constipation does not exist—a so-called lactovegetable or even constipating diet. The following diet scheme recommends itself for this purpose: Breakfast: sweet milk, cocoa, oatmeal with cocoa, white or dark bread, with honey, jam, or fresh fruit. Dinner (preferably at midday): vegetables or fruit, as apples, plums, blueberries, raspberries, cherries, a broth or vegetable soup, spinach, tomato, or beet soup, a milk soup or curded milk, butter, and a liberal amount of fresh vegetables are desirable, or pea, rice, or lentil soup, stewed vegetables with dumpling, macaroni, puddings, blanc mange with fruit juices, etc.; salads, and eggs variously prepared, bread with butter, and a light cheese. Supper: a thick soup made with barley, rice, tapioca, etc., baked potatoes, eggs, bread, butter, cheese, milk, etc.

According to the needs of the patient the foregoing diet will be more or less carefully followed, and on certain days a small amount of meat may be allowed by way of variety.

While this diet is directed especially against the local intestinal condition, still it serves well to support and improve the general nutrition, because of the high percentage of the carbohydrates and fats, which is very important. These are of special value in instances in which women have had repeated pregnancies, and as a consequence have pendulous abdomens with low-hanging intestines, in which the feces tend to stagnate. Through improved nutrition it frequently happens that the abdomen takes on fat, making the walls more firm, and consequently raising the intestines somewhat, thus indirectly relieving the constipation. In the cases not complicated by costiveness the results of dietetic treatment are not marked. However, through better nourishment the hysteria and neurasthenia are directly benefited.

FACIAL PARALYSIS.

In *American Medicine* of February 13, 1904, WILSON in writing on this subject asks the question: After a diagnosis has been made and the lesion located, what should be done for the patient?

We must remember that electric changes soon develop in paralyzed muscles. The reaction of degeneration, partial or complete, appears in four or five days after the paralysis occurs, and according to Starr the electric contractility in the facial muscles is usually altered. In some cases the faradic contractility is preserved and the galvanic contractility is slightly increased, so that the muscles respond to a weaker current than those upon the normal side. In these cases recovery occurs within three or four weeks.

In cases of medium severity, however, there is a partial reaction of degeneration. The faradic contractile is very much diminished or even lost, while the galvanic contractile is heightened, so that only a weak current is necessary to produce contractility. In severe and permanent cases there is a total reaction of degeneration, a complete loss of faradic contractility, and a gradual reduction in the galvanic contractility.

One can readily see how important are the electric reactions, not only as symptoms, but as prognostic indications.

Electricity should not be applied, therefore, until the end of the third week, except to ascertain the excitability of the muscles. One month after the paralysis has occurred electricity and massage should be used, regularly and systematically. If the muscles respond to faradism, that current should be used. If they do not respond to the induced current, galvanism should be used, and should be used only with the galvanometer, so that the strength of the current may be known and gradually increased, if necessary.

Flannel wrung out of hot water, or the hot-water bag, applied to the side of the

face for the first four days does something toward relieving the stiffness of the muscles and dilating the vessels, thus favoring the process of degeneration and regeneration. Blisters over the mastoid do more harm than good, except for their mental effect.

We must endeavor to ascertain the cause of the palsy, and if due to ear trouble, remove the cause. If syphilis is suspected, potassium iodide and mercury should be given in full doses.

The eye must be protected by hanging a patch over it, or by the wearing of colored glasses. It must be kept clean by washing with a solution of boric acid. Internal medication is of little or no value.

TREATMENT OF PNEUMONIA.

ROCHESTER states in the *Medical News* of February 13, 1904, that in the treatment of pneumonia our first indication in treatment, the relief of toxemia, may be met by induced sweats and mild catharsis. The mild catharsis is best produced by the administration of calomel at the onset of the disease, to be followed by the use of a saturated solution of Epsom salts in moderate dose daily. The calomel dose may be repeated occasionally as the indications arise. The sweating is best and most easily induced, not by the administration of drugs, but by the hot mustard foot-bath, given in bed with no disturbance of the patient. As much depends upon the proper method of giving this bath, and as the writer has seen failures through lack of this knowledge, he thus describes the procedure in detail:

The patient, in a nude condition, lies between blankets with his knees flexed, his feet in the tub, which has been introduced under the upper blanket, the long axis in the line of the patient's body and legs; another blanket passes from under the tub up over the end and over the knees of the patient; two to five blankets, or a fewer number of blankets and a rubber sheet, are then placed over the patient extending from the neck over the foot of the bed, and tucked in around the foot-tub and side of the patient. The tub at first is half filled with hot water, in which a heaping teaspoonful of mustard has been dissolved—from time to time during the bath more hot water is added, care being taken that the water is poured against the side of the tub and stirred in by the hand of the nurse, in order to avoid burning the patient's feet. The bath is kept up from thirty to forty-five minutes, according to the amount of sweating produced. During the administration of the bath cloths wrung out of ice water are kept constantly on the head of the patient. This sweating, in connection with the stimulation to be referred to later, is in the opinion of the writer the most important of the general therapeutic measures.

Another measure of value in preventing further bacterial invasion is the frequent and thorough cleansing of the mouth with a mild antiseptic solution. This is a measure of considerable importance, as we know the pneumococcus is present in the mouth in considerable numbers.

While attempting to get rid of toxins by these means, it is important to put and keep the patient in the best possible condition to resist and overcome the toxemia that is present. For this purpose care should be exercised in the selection of a proper diet. This should be fluid, and so far as possible should be sterile, so that no new poisons may be introduced. A large amount of pure water should be administered, so that there may be plenty of fluid to flush the excretory organs. It is best administered in small amounts at short intervals.

Moreover the patient should be placed in the best ventilated room possible to secure, and one to which there is free access of direct sunlight. The free catharsis and profuse sweating, besides aiding in elimination of toxins, tend to dilate the capillaries, thus relieving the arterial tension and getting rid of the capillary resistance to the onflow of the blood, making the work of the heart easier. One of the serious dangers we have seen is overdistention of the right heart. This can often be prevented by careful study of the lung condition as well as the state of the heart itself, and the prompt institution of the procedure indicated. A careful physical examination of the chest should be made by the physician at every visit. In this way he can tell when congestion is beginning in any part; and vigorous local treatment will in many cases prevent the further progress

of the morbid process. As soon as a portion of the lung is shown by physical examination to be in a state of beginning congestion, the prompt and thorough application of leeches, wet cups, or dry cups over the part will often stay the process there; or if it does not stop it entirely, will delay its progress twenty-four or forty-eight hours, and give an opportunity for the clearing up of any previously involved portion of the lung. The author's preference is for leeching or wet cupping.

If dry cupping is resorted to it should be very thorough, the skin and subcutaneous tissue rising up in the cup to as great a height as possible and turning blue or purple while there. The cups should be left on for a half-hour, and the process repeated every four to six hours. The writer has seen, post mortem, the direct anatomical evidence of the local value of this procedure, when thoroughly done. During the intervals between the applications of the cups the chest should be covered with a light woolen jacket. The poultice jacket should be relegated to the dark ages.

THE TREATMENT OF DIABETES.

The *Journal of the American Medical Association* of February 20, 1904, asserts in its editorial columns that practically all mild cases of diabetes feel better when the urine is kept free from sugar. The hunger grows less, the thirst diminishes, the weariness disappears, and there are fewer nervous symptoms. Occasionally, however, a "mild" case does not do well on this treatment. If the patient begins to emaciate and to feel very tired, the amount of carbohydrate food should be increased, even if the urine does not remain entirely free from sugar, for here the general feeling of well-being on the part of the patient is the physician's best guide. Much can be done, too, to add to every patient's comfort by varying the form in which the carbohydrate is given at the different meal-times. With the aid of the tables now available, the equivalent of the starch of a given number of grains of white bread in, say, rice, potatoes, macaroni, fresh peas or green beans, or in the various forms of "diabetic bread," may be easily ascertained, and the carbohydrate food should, once the tolerance has been established, be varied as much as possible.

In the treatment of cases of the "severe" type, it is not practicable to proceed so schematically as in the treatment of cases of the "mild" type. The "severe" cases, on a diet entirely free from carbohydrates, still excrete sugar in the urine, the body being unable even to oxidize the carbohydrate moiety of the breaking-down molecules of albuminous food. But it would be a grave mistake to keep such patients for a long time on a diet entirely free from carbohydrates with the idea of reducing the sugar in the urine to a minimum. Even the normal body with a diet free from carbohydrates will begin to build acetone and aceto-acetic acid, and later beta-oxybutyric acid, and these substances will appear in the urine. Every diabetic patient placed on the rigid diet soon begins to excrete these bodies in the urine, and if acetone does not appear the physician may be sure that the rigid diet prescribed has not been adhered to. The rule, then, in severe cases is to begin with a rigid diet. If the acetonuria which comes at first disappears again, and the patient in general feels better, it may be continued; but if the acetonuria is intense and beta-oxybutyric acid begins to appear in the urine, the rigid diet should not be continued, but enough carbohydrate given to make these organic acids disappear. There seems no longer to be any doubt that the graver nervous symptoms of diabetes, including the much-dreaded diabetic coma, are directly related to the presence of organic acids in the blood; it is, therefore, much more important in the severe cases to prevent acid-intoxication than to keep the urine free from sugar.

THE TREATMENT OF PUERPERAL SEPSIS.

Dr. PETER HORROCKS in an article contributed to the *British Medical Journal* of February 13, 1904, after discussing some of the causes of this state, well says that when a case of puerperal sepsis arises, the question of how to treat it is, of course, of the highest importance. The first question which arises is, Is it a case of sapremia or of septicemia? If with pyrexia there be plenty of milk, plenty of lochia, and if the latter be offensive, it is probably sapremic.

In such a case it is much the best practice to give an anesthetic and to feel all over the interior of the uterus with the disinfected finger, to remove any piece of placenta, membrane, clot, or other decomposing matter, and to follow this up by a copious intra-uterine douche of some antiseptic, such as perchloride of mercury solution 1 in 1000, formalin solution 1 in 1000, or tincture of iodine 3ij to Oj, in any case using at least a quart, and finally washing out this strong lotion with some milder antiseptic, such as boracic acid lotion or salt and water (3ij and Oj). This washing out of the uterus should be repeated if the discharge is still foul the next day, or if the temperature remains high.

Some practitioners are content in a sapremic case just to wash out the uterus without this digital exploration, under an anesthetic, and no doubt many cases rapidly improve and get quite well with such simple treatment. But cases are met with which after all require the uterine exploration, and in which a removable mass of decomposing material is found in the uterus, and in some instances unfortunately it is only discovered post mortem.

If the milk is getting scanty or suppressed, if the lochia, too, are diminishing or suppressed and not offensive, but quite sweet, and the temperature is high, it is probably a grave case of puerperal septicemia.

In such a case, again, if seen early enough—and of course the doctor knows of the rigor and fever probably soon after they begin—the patient should be put under an anesthetic, and the interior of the uterus should be explored digitally to find out if there be any decomposing mass. Probably nothing will be found. The uterine cavity can be thoroughly syringed with the same lotion as before mentioned, though unfortunately, as a rule, without the same good result following. In such cases where there is no good effect on the temperature, it is often found to be very exhausting to the patient to continue to syringe her, and so it should not be done. Some use glycerin solution, with or without antiseptics like formalin.

The author is not at all sure that curetting the uterus is not a good plan, especially if done early, say about the fourth or fifth day of the puerperium. He has done this in several cases with good results, and recommended it as far back as 1890. Of course one gives the patient various antipyretics, such as quinine, antifebrin, antipyrin, and the like, but not one of them is a specific. [With this advice we strongly dissent, as it diminishes vital resistance and does no good.—Ed.] Some authorities recommend packing the uterine cavity with gauze wrung out in some such strongly germicidal solution as formalin 1 in 500. Webster recommends crenasol as the best antiseptic to use. It consists of pure creolin *minus* soda, and is of oily consistence, and is said to kill pathogenic organisms in two minutes.

Of antistreptococcus serum the writer has had a large experience, and in some of his cases it seems to act wonderfully well, but it so often fails that one must admit that it is unsatisfactory. Possibly before long a really reliable serum will be obtained which will enable us to snatch these unfortunate patients from grave danger.

In using the serum we give 20 cubic centimeters at a time, injected subcutaneously on the anterior surface of the body, generally the abdomen, with of course every aseptic precaution. This should be repeated so that the patient gets 60 cubic centimeters within the first twenty-four hours, and then give 20 cubic centimeters twice a day afterward. Any wounds in the parturient canal, ruptured perineum, lacerations of the vaginal wall or of the cervix uteri should be discovered and carefully washed with antiseptic lotions. Iodoform powder may be dusted on them.

With regard to the removal of the uterus by hysterectomy, vaginal or abdominal, in these cases, the writer has no experience; such a procedure would only be successful, he believes, when done quite early, and it is precisely in these cases that we cannot tell whether they will be fatal or not. Hence he does not think it is likely to become a recognized practice. The same remarks apply to opening the peritoneum and washing it out and draining it; he has only done this once, and the patient died.

There are two other questions which commonly arise and which have been frequently asked. The first one is, Should a doctor who gets a case of puerperal

septicemia continue his midwifery practice?

The answer is decidedly in the negative. So long as he is in active attendance on a septic case, so long is he dangerous to a woman in labor. Sometimes he is told, "Oh, but I am engaged to attend Mrs. B., and she would be greatly annoyed if at the last moment I failed to attend." Horrock's advice is to write to her husband and tell him you have a case of blood poisoning on hand, and that it would be highly dangerous for you to attend his wife, and that he had better have your assistant, or *locum tenens,* or your partner if you have one, or some other doctor. If you do this you will get no discredit, but just the opposite; you will be known as a careful and conscientious doctor.

Think of your own feelings if the case of septicemia you were attending died, and the other case developed it and died too. How could you say that you had not conveyed the disease?

There is, however, another alternative, and that is to give up attendance on the septic case and place it in other hands, and become aseptic in order to go on with midwifery practice.

And this leads to the second question, namely, How soon after ceasing to attend upon a puerperal septic case is it possible to resume general obstetric practice? The reply is, in about fifteen to twenty minutes—in other words, just as long as it takes to get your hands aseptic. The clothes can be covered over by means of a sterilized overall, and the hands can be made aseptic by the well recognized methods. [Here again we differ from the author.—Ed.]

Horrocks states that he has digitally explored the uterus of a woman moribund from the most virulent type of puerperal septicemia, and then within an hour or two done a Cæsarian section, mother and child doing perfectly well.

Of course as a rule a medical man would take longer than this, but it must be borne in mind that however long he takes, he must go through the same process with regard to his hands in rendering them aseptic. He must not think that a week or two away from practice will render him aseptic unless he uses the other measures also.

His clothing can be rendered aseptic by sterilization with superheated steam, but in all cases when examining or delivering a woman in labor he should have his coat off and his shirt-sleeves rolled up, and if possible should wear a sterilized overall, certainly in operations; and at other times, when he cannot obtain one, he can cover his clothes with a clean towel, and avoid touching even that.

THE TREATMENT OF CHRONIC RHEUMATISM.

To the *British Medical Journal* of February 27, 1904, Stockman, of Glasgow, contributes his views as to the treatment of chronic rheumatism.

During an acute exacerbation, when the indurations swell up and cause pain and aching, relief may be given by hot baths, massage, phenacetine, Dover's powder, sodium salicylate, the local application of methyl salicylate, and similar measures. But the relief thus afforded is only temporary, and often in a few hours, or as soon as treatment is stopped, the pains return, to continue for days, weeks, or indefinitely, and the patient remains as before, liable to renewed attacks on every exposure to cold, wet, or fatigue.

To obtain permanent cure and complete relief from the recurrent attacks, the fibrous indurations must be completely dispersed, and in all but quite recent cases this is always a more or less tedious and troublesome procedure. The only means of any special and definite value in this respect are massage and exercises, the faradic current, and the injection of solution of chromic acid into any of the fibrous indurations which are sufficiently large and defined to allow of this being done. Of the three, massage is the most efficacious.

General massage is of no use. It must be specially directed to any nodules or thickenings which can be felt. At first they are often too tender to be rubbed with much pressure, but gradually they become more callous and more fibrous, and may then be more vigorously treated. A good deal of experience and skill is required during the early treatment, but after they begin to shrink in size the knuckles and fists may be used for rubbing, and ultimately the nodules disappear. The massage should be carried out daily, ten or fifteen minutes being de-

voted to each part. To obtain satisfactory cure the dispersion of all the indurations must be complete, otherwise relapses occur and are a source of much disappointment. The length of time required to do this varies very much. Recent soft swellings may disappear in two or three weeks, but when the indurations are old and widely spread three to six or twelve months may be required.

Exercises calculated to stretch the aponeuroses and muscles involved are of value in hastening and completing the cure. A stick, dumb-bells, Indian clubs, Sandow's exerciser, may all be called into requisition to provide suitable movements.

The faradic current should be applied over each region for five to ten minutes daily. It has some effect in causing shrinkage of the swollen fibrous tissue.

The injection of chromic acid is only possible where the nodule is sharply defined and can be penetrated accurately by the hypodermic needle. Superficial nodules should never be treated in this way, as the solution is apt to damage the skin and cause a phlegmon. Ten minims or less of a one-per-cent solution in water may be given. It may cause some aching, but if the nodule has been accurately injected, shrinking, with great relief to the rheumatic pain, follows.

Where intestinal indigestion is present, and especially in lumbago, a course of mild purging (gray powder, compound rhubarb powder, salines) is advisable. As regards specific remedies, it cannot be said that any are known which cause absorption of the fibrous induration. In quite recent cases the author has observed that potassium iodide gives relief, but in regularly chronic cases any benefit is not very apparent. Salicylic compounds lessen pain during the exacerbations. Their action is not curative, however, as they cannot be expected to remove hard fibrous tissue. The same is true of phenacetine, phenazone, quinine, and all similar compounds. Alkalies, ammonium chloride, colchicum, guaiacum, actea racemosa, do no good. Iodine and local blistering are helpful, especially over joints or nerves.

Recent cases, where the fibrous thickenings are in the early stage and still plastic, may be cured by a course of hydrotherapy, but inveterate cases only obings. The drinking, bathing, and general massage promote absorption of the serous exudation in the fibrous tissue, and possibly some shrinking. This usually gives for a time complete relief to the pain, aching, and stiffness of chronic cases, so that the patient feels much more happy and energetic. The indurations still remain, however, and are apt to swell and give trouble under the influence of exciting causes. The regular purgation obtained at Harrogate by the sulphur water improves intestinal digestion and does much good in certain cases.

The broad rule is to avoid gastrointestinal fermentation, and the consequent absorption of irritant products from the bowel. Indigestion certainly causes aching in many rheumatic subjects, and the best way to avoid it is to eat plainly but sufficiently of an ordinary mixed diet. Any articles which are well and easily digested by the individual may be allowed.

Residence in a dry, stimulating climate often brings about spontaneous cure. A damp atmosphere and a seaside climate increase the symptoms, and seem to favor the conditions which give rise to chronic rheumatism.

Certain nodules after prolonged massage remain very hard, and refuse to be dispersed. If they cause pain and aching, they can be removed surgically. Removal gives complete relief. It is sometimes not an easy operation, as the small mass of fibrous tissue often lies deep, and may be difficult to find.

THE ALKALINE TREATMENT OF DYSPEPSIA.

HUCHARD in *La Revue de Thérapeutique* of January 15, 1904, discusses the treatment of dyspepsia by means of the alkalies, especially bicarbonate of sodium, which he considers to be the most useful drug for general use. Its effects vary greatly with the quantity which is taken and with the time at which it is administered. Thus, small doses taken before meals stimulate the secretion of gastric juice and cause contraction of the muscular coat of the stomach, while large doses taken after meals exert a retardative influence upon the process of digestion.

Because of this double action the drug is of service in two distinct forms of gas-

with anorexia and in hyperchlorhydric dyspepsia. In the former it is given in 3- or 5-grain doses from one-half to one hour before meals, and in the latter in doses of half or even one drachm, one, two, or even three hours after meals, so that it may saturate the excess of hydrochloric acid which is present in the stomach. The small doses which are employed in atonic dyspepsia should not be used longer than four weeks lest the secondary depressant effect of the drug be produced. Huchard states that he has never observed a case of alkaline cachexia result from this treatment, but on the contrary he has seen a considerable increase in body weight follow its employment.

ERGOT IN ALCOHOLISM, MORPHINISM, AND THE GENERAL CLASS OF DRUG-HABIT CASES.

About a year ago LIVINGSTON wrote a paper on this subject. He now takes it up again in the *Medical News* of March 5, 1904. His study of this class of cases and of nervous irritability and excitability in other classes has led him to a positive conclusion that the nervous symptoms depend directly on a disturbance of the vascular system in the nerve centers, and that the circulatory disturbance is due to paralysis of the sympathetic or vasomotor centers.

The logical conclusion is therefore that the prime indication is to tone the relaxed, dilated vessels and bring about as promptly as possible an equilibrium of the circulation. There are several methods by which this result may be wholly or partly secured.

1. Cold to the head and spine by means of ice-cap and spinal bag; or hot followed immediately by cold sponging of the spine, repeating these alternately half a dozen times or more, and such séance several times a day.

2. Galvanization of the chain of sympathetic ganglia by use of the hand electrodes, stroking from occiput to sacrum, the electrodes one on either side of the spine, and separated about four inches from each other. The quantity of current should be 10 to 15 milliamperes and continued for twenty minutes. This should be followed by similar applications of five minutes each over the upper, middle, and lower cervical sympathetic ganglia; or the static current may be used, and the author particularly recommends a prolonged application of the static wave, half an hour or more, to the whole length of the spine with a spark-gap of five to eight inches, and this séance followed by sparking over the lines of the sympathetic ganglia.

3. Dry-cupping over the entire spine and including the sides of the neck, not with the old-fashioned alcohol cups, but with the modern valve cups, which are emptied by means of an air pump.

4. Massage, which, properly applied by a skilled masseur, is certainly of much service in stimulating the general circulation, and therefore in relieving congested areas.

5. And last but by no means the least effective method, hypodermic injections of ergot. While the other methods may be effective, this one is presented as the most certain and the most prompt in its action. The author makes this assurance not only upon many practical demonstrations, but upon two grounds that he believes will appeal to common sense and to reason.

The first step in the method which the author has been accustomed to use is to wholly and immediately discontinue the use of the narcotic and place conditions about the patient which will absolutely prohibit access to that drug, or to any other that would be regarded as a substitute. By this method he demonstrates the most clearly to the subject what he is loath to believe, viz., that neither the drug he has been using nor any other of similar effect is necessary to him. He at once begins the application of ergot, because he knows that within from twenty-four to thirty-six hours there will begin, in the extreme cases, a violent reactionary stage, the basis of which will be a dilated state of the blood-vessels in the nerve centers, which may be modified by the action of ergot upon their muscular coat. At the same time he gives a mercurial purgative, followed in a few hours by a sufficient saline to assure prompt purgation. This is desirable in order to limit or avoid the irritative effect of a loaded bowel upon an irritable and excited brain and cord, and also to prepare the digestive tract for especially good service during the coming exhausting ordeal. In preparation also against exhaustion he discontinues the ordinary meals and gives abundant fluid

and easily digested nourishment every three hours, such as a good form of beef, and the best of which he knows is a paste consisting of the ordinary fluid extract to which has been added the desiccated and pulverized fibrin. This form is therefore not wholly soluble, the fibrin settling to the bottom if not constantly stirred. The whites of a couple of eggs dissolved in half a glass of cold water, to which a pinch of salt has been added, make another good three-hour-interim meal, as do also some of the cereal or lactocereal preparations on the market. With the exception of the egg food it is better to give all these liquid foods quite warm or hot. Do not use nutritives prepared with alcohol. The bowels must be kept open at least once a day, better two or three times, and the author gives the fluid extract of rhamnus frangula preference for this purpose, in doses of one or two drachms at bedtime, and perhaps also forenoon and afternoon. The frequency of application of the ergot will depend upon the degree of addiction, and upon the general condition of the subject when the drug was discontinued. The larger the daily dosage had been, and the greater the nervous prostration at the beginning of the treatment, the greater is likely to be the reaction following the discontinuance, and therefore the greater should be the effort to prepare against this reaction.

IMPROVEMENTS IN DIETETICS OF DIABETICS.

SAWYER contributes a paper to the *British Medical Journal* of March 5, 1904, in which he gives the results of his experience in the treatment of this disease.

In the management of this difficult malady it has been recognized by the profession for many years that abstinence from sugar and from other articles of food which are convertible after ingestion into glucose causes a great lessening in the quantity of glucose in a diabetic patient's urine, and also a marked diminution in the heightened density and quantity of the urine. These changes for the better are coincident with arrest of bodily wasting, even with some gain of bodily weight, and also with general improvement, in a very large proportion of those

To meet these rational and practical indications as to treatment much care has been taken by many physicians to devise an extended, varied, and agreeable and practicable dietary. Until the researches of Mossé were published two years ago it was our therapeutic rule to withhold potatoes in saccharine diabetes. The potato contains from 16 to 24 per cent of starch, and it used to be classed without qualification amongst food inadmissible in glycosuria in a case treated upon the diabetic principle referred to. His researches have led Mossé to conclude that potatoes, far from being harmful, form a useful and beneficial food in glycosuria, and that they are capable of being substituted for ordinary wheaten bread in daily proportions sufficient to maintain the alimentary ratio—that is to say, in the proportion of two and a half to three of potatoes for one of bread. Mossé found that a daily ingestion of potatoes in quantities of from 1000 to 1500 grammes, roughly of from 2 to 3 pounds avoirdupois, brought about in nineteen out of twenty cases of diabetes speedy diminution of the glycosuria, quick relief of thirst, and general improvement in the patient, and all this in all forms of diabetes. The salts contained in the potato are chiefly those of potash. Potash is contained in potatoes in much larger proportion than in wheaten bread, and Mossé attributes the superiority of potatoes in a diabetic dietary to the increased ingestion of potash. The author's own experience in practice during the last two years is confirmatory of Mossé's conclusions.

In the author's opinion it will be found in practice that the permission of potatoes in the food of diabetics is one of the greatest dietetic advances of our times. Potatoes cooked in any of the ordinary ways are a grateful food. He points out that for the retention of the salts of the potato the vegetable should be cooked in a peculiar way. It should be cooked by steaming with its "skin" on. If potatoes be peeled and then cooked by steaming, they lose in the cooking large proportions of their potash and of their phosphoric acid, and they lose more of each of these their constituents if they be peeled and then cooked by boiling.

It is possible that the beneficial results of Mossé's discovery and teaching as to

might well be carried much further in the dietetics of diabetes than in merely the free allowance of properly cooked potatoes in a dietary. The writer proposes that the therapeutic difficulty as to the prohibition of ordinary bread for a diabetic may be met advantageously by making bread, cakes, and biscuits for diabetics by using the "flour" of properly cooked potatoes instead of the flour of grain. Excellent and delicious baked cakes can be made from paste composed of a kind of flour prepared by rubbing down potatoes cooked with their coats on by steaming, blended with cream and butter. With the aid of some good cooks in his kitchen the author has made many experiments as to the formation of bread and biscuits from bran and the flour of potatoes. As the best results at present reached from these inquiries, he has decided upon the following details for the making of these new biscuits and bread for diabetics:

Bran and Potato Bread.—Take half a pound of flour of steamed potatoes, quarter of a pound of bran, half an ounce of German yeast, half an ounce of butter, one egg. Twenty-four hours before making the dough cook the potatoes by steaming them in their "jackets," then peel and break up into flour with the fingers. Mix all the ingredients together, and let the paste stand near the fire for an hour to "rise." Bake in greased tins for an hour and a half.

In common with many other physicians, he has arranged and employed in practice for many years a diabetic dietary which is sufficiently strict for practical purposes, and which is in harmony with the principle of abstinence from sugar and from all other articles of food which are convertible into glucose after ingestion, and of such a formulated dietary he has been accustomed to give a printed copy to a patient in a suitable case. His dietary rules in diabetes, as now modified by Mossé's permission of potatoes, and by the developments the author has devised of potato-made bread, biscuits, and cakes, prepared in the ways he has described, would read:

May Eat.—Butcher's meat of all kinds, excepting liver. Pork, ham, bacon, poultry, game, potatoes steamed in their "skins." Fish, oysters, crabs, lobsters. Animal soups, not thickened, excepting Bran and potato bread or biscuits, potato cakes, eggs, cream, butter, cheese, greens, watercress, mustard and cress, lettuce, mushrooms, nuts; jelly or custard, unsweetened.

May Not Eat.—Any bread or biscuits but those made of bran and potato, sugar, asparagus, broccoli, cauliflower, carrots, parsnips, French beans, peas, turnips, arrowroot, macaroni, rice, sago, tapioca, vermicelli, pastry, excepting potato cakes; puddings; fruit, fresh and preserved.

May Drink.—Water, tea, coffee, soda-water, claret, hock, spirits and water, unsweetened; bitter ale, very sparingly; milk, very sparingly.

May Not Drink.—Cocoa, chocolate, champagne, porter, stout, home-made wines, liquors, cider, sweet wines, ale.

ADRENALIN IN ACUTE GLAUCOMA.

The *Medical Press* of March 9, 1904, has this to say about this subject: The pathology of acute glaucoma has been variously described as being due to a retention of the intra-ocular fluids or to their hypersecretion. While modern ophthalmological opinion is inclined toward the acceptance of the former theory, there can be little doubt that vascular congestion plays no small part in the production of the glaucomatous state. The performance of iridectomy and the use of myotics have, up to the present time, constituted the main forms of treatment. The anti-glaucomatous effect of a myotic depends, of course, entirely upon its power of bringing about contraction of the pupil, and if this cannot be done the drug is valueless. M. Grandclement showed at a recent meeting of the Société des Sciences Médicales of Lyons a patient, aged thirty-seven, in whom he had cured an attack of acute glaucoma by the instillation of adrenalin. The strength employed was 1 in 5000, and the solution was dropped into the affected eye every half-hour for three consecutive days. It has been found experimentally that suprarenal extract arrests the formation of the aqueous humor in the eyes of animals, and therefore diminishes intra-ocular tension.

In the discussion which followed the exhibition of the case, M. Aurand stated that he had used adrenalin in a case of double glaucoma, in which relief of pain

obtained, but he performed iridectomy afterward. Until it can be proved that this beneficial effect of adrenalin is more than temporary, it is doubtful whether this powerful vasoconstrictor will find favor with ophthalmic surgeons. If it be established that operation affords the best chances of success in acute glaucoma, there can be no object in wasting time by employing less radical measures. We have by no means exhausted the therapeutical possibilities of suprarenal extract, and its use in this department of surgery may, after further experiment, be found of service.

THE MANAGEMENT OF PNEUMONIA WITH SPECIAL REFERENCE TO HYDROTHERAPY.

In the course of an address in California, BARUCH of New York stated, according to the *Southern California Practioner* for March, 1904, that in his opinion the elements of the newer management of pneumonia are as follows:

1. Absolute rest. The patient must be completely isolated from the family and friends, under the care of a nurse or member of the family; he must not be allowed to leave his bed for any purpose; all mental and physical effort must be avoided.

2. Ventilation of the sick-room. This must not be perfunctory. Examine for yourselves how far the window is open, and if the passage of air through this opening is not obstructed by a window shade. Even in cold weather there must be constant access of fresh air to the sick-chamber; if the nurses find it uncomfortable, let them wear more clothing. A febrile temperature prevents the contraction of a cold which is so much feared. Give your patient plenty of oxygen in this manner in the early stages, and he will require no oxygen inhalation later. The latter appears rational, because the law of diffusion of gases by which the residual air in the air cells is supplied with oxygen precludes the saturation with concentrated oxygen gas.

3. Drink. The patient should receive four to six ounces of water at 40° F. (ice water, prepared some time previously) every hour. In order to insure the methodical administration of this ice water, the writer often orders a few drops of hydrochloric acid or other placebo to be taken in four to six ounces of ice water every hour. It is to be borne in mind that the sudden contact of very cold water with the mucous membrane of the stomach produces the same shock and reaction and consequent enhancement of the circulation which results from a similar application to the skin. This is evident when in summer, after drinking ice water, the body perspires profusely. The flow of urine is considerably increased, much more so than by the imbibition of larger quantities of tepid water. This is an important point and but imperfectly understood.

4. Stimulants. Under the management of pneumonia which the writer recommends to us, stimulants become unnecessary, except in alcoholics, who are accustomed to them as a daily pabulum. The writer has recently seen in consultation with Dr. H. A. Rogers, of New York, a case of influenzal pneumonia, the patient being sixty-eight years old, a diabetic, and the urine giving acetone reaction. Both lungs became successively involved; the case was desperate, and yet the management here outlined sufficed with but little stimulation to carry the case to a successful issue (of course the acetonuria was met by large doses of bicarbonate of soda). In a case of pleuropneumonia in a member of his own family, whom he brought to that favored clime of California for convalescence, two teaspoonfuls of brandy, for the purpose of cheering him (by suggestion), was the only stimulant administered, although the case was of very severe type, the temperature reaching 105° F. Alcoholics may receive one-half to one ounce of brandy every three or four hours, according to their previous habits.

5. Medication. The writer still has the Southern habit, which has so often served him well, of opening all cases of pneumonia with eight or ten grains of calomel for the purpose of clearing the decks for action, as it were. The calomel is administered dry upon the tongue, and the mouth is well rinsed with water mixed with the calomel before the latter is swallowed, for the purpose of preventing ptyalism and destroying all diplococci that may be present in the mouth. Several copious movements are usually the result, and if these are absent citrate of magnesia is administered. Avoid the small doses of

one-tenth of a grain very frequently administered, which have become the vogue. They tease the intestines and disturb the patient's rest by the necessity of frequent administration; they do harm by interfering with absolute rest and irritating the intestinal canal needlessly. Strychnine is sometimes useful when the first sound of the heart becomes feeble. It should be administered hypodermically in doses of one-sixtieth to one-thirtieth of a grain every six hours, under these conditions of cardiac failure. Small doses of the coal-tar preparations are sometimes useful as calmative agents when the patient is restless with high temperature. One dose of six or eight grains of ammonol will produce sleep and quiet the patient. It should not be administered oftener than once in twenty-four hours. The author has inveighed against the routine use of antipyretics in typhoid fever in a previous lecture. Its routine use for temperature reduction is just as irrational and damaging to the heart and excretory organs in pneumonia.

CHRONIC RHINITIS: ITS VARIETIES AND TREATMENT.

In the *Physician and Surgeon* for February, 1904, FREER writes upon this subject. He says that atrophy of the structures of the nasal interior is irremediable, and as long as it is not associated with abnormal changes in the nasal secretions does not inconvenience the patient. Cases with simple atrophy, therefore, need no treatment. To remove the adherent masses of dried pus and mucus in atrophic rhinitis the hard-rubber irrigating tube is efficient when the scabs are not too hard or firmly adherent, patients learning readily to manipulate the tube and by means of a bulb syringe to wash the nose and nasopharynx clean in a few minutes. In some cases the crusts are so firmly attached that they may not be removed unless softened. For this purpose Gottstein's plugs are efficient. A square piece of cotton about three inches long is neatly rolled into a cylinder between the fingers by means of an applicator around one end of which one inch of the cotton square is twisted, to lightly hold it. Then the applicator is pulled out, the cotton roll is dipped into an ointment and rotated into the nostril as far as it will go. This the patient may readily do with his fingers. The plug should be large enough to snugly fill the nostril. The screw recommended by Gottstein for introducing the cotton is unnecessary. If retained from a half-hour to an hour the cotton, aided by the ointment, will soften the crusts by exciting secretion and preventing its drying in the air current, so that the resulting pasty matter may be readily washed away.

After removal of the crusts the nose should be irrigated with a solution of potassium permanganate of from one-eighth to one-half grain to the ounce. This disinfectant is not needed to remove fetor, for the latter disappears with the scabs, but is efficient in preventing their formation and stops the return of the odor by rendering the mucosa aseptic. The author has also found potassium permanganate in a spray of from four to eight grains to the ounce effective in preventing the reformation of scabs in the laryngeal and tracheal extension of the disease. For this purpose he uses a long tracheal spray tube which he designed for the purpose. These methods of keeping the nasal cavity clean will in many cases lead to a gradual lessening of the formation of scabs, the patient needing to wash out his nose at rarer and rarer intervals, and complete recoveries have been produced in the course of a few years even in young persons. There is a decided tendency to spontaneous recovery toward middle life, and it is in the younger subjects that treatment needs to be most persistent. The deafness and anosmia resulting from atrophic rhinitis are of course not curable.

Suppuration of the accessory sinuses as a possible complication of atrophic rhinitis should always be searched for, but in the majority of cases is not present. Ordinarily empyema of the frontal sinus, ethmoid cells, maxillary antrum, or sphenoidal sinus, though it may lead to the formation of crusts of dried discharge, causes irritative hypertrophy, rather than atrophic rhinitis. Sinus disease accompanying rhinitis atrophicans must be treated by operation before the rhinitis can get well.

The great roominess of the nasal cavity in atrophic rhinitis favors the drying of secretions, which form a protection under which bacteria flourish, producing putrefaction. That decomposition does not always occur is probably due to the variable

extent to which the secretion differs from the standard of normal mucus, as healthy nasal mucus is a poor culture medium for germs. The drying of the nasal secretion takes place much more readily in the dry air of heated houses in winter than when the atmosphere is charged with moisture in summer. For this reason many patients suffer an aggravation of their trouble in winter. On this account an effort should be made to have the air in the patient's room made as artificially moist as possible.

Some obstinate cases of atrophic rhinitis are but little improved by the cleansing treatment. For these the method called copper electrolysis is of value. As usually employed, a negative steel needle is inserted under the mucosa at the base of the septum, while a positive copper one is pushed under the mucous membrane of the middle or lower turbinal. The sittings are of from five to ten minutes' duration, and the current strength from three to ten milliamperes. The negative needle is apt to create destructive cauterization if kept too long in one place. The effect of copper electrolysis is marked, the crusting in many cases ceasing for weeks or months after one or a few treatments. Recently the author has tried, instead of the needles, surface electrolysis with probe-shaped electrodes, the negative one, which may be of any metal, being wrapped in moist cotton and inserted in one nostril, while the positive pole, a large copper probe, is moved about over the mucosa of the other naris. The current strength is from three to ten milliamperes, and the time five minutes. For the nasopharynx the author uses a large ball-shaped copper positive electrode. He has seen marked lessening of the crusting follow this method, but his experience is as yet too limited to assure its usefulness. As it does not cauterize, he suggests its trial before copper electrolysis with the needles is resorted to, as it can do no harm.

Another method of treatment which he has found beneficial for obstinate crusting in atrophic rhinitis is massage of the entire mucosa of the nasal fossæ, and through them of the whole surface of the nasopharynx, which may be readily reached through the wide nasal passages. Stiff metal applicators bearing cotton swabs soaked in a ten-per-cent protargol or argyrol solution should be used. The rubbing should be vigorous, and a fresh cotton swab used as soon as the one employed becomes filled with mucus. The non-sensitive mucosa bears the treatment without much or any reaction.

THE GENERAL MANAGEMENT OF DIABETES.

In an article contributed to a symposium on this subject published in the *Albany Medical Annals* for April, 1904, SHATTUCK, of Boston, states that as he has grown older he finds that he has more and more discarded the use of diabetic breads. No diabetic bread which is palatable for any length of time is safe. We must always reckon with human greed for gold, and so ordinary, or perhaps Graham, bread, the percentage of sugar-forming material in which is known, is preferable to running the chance of deluding the physician and his patient. The author once visited *incognito* the agency of a well known company which purveys for diabetics. "Have you bread for diabetics?" "Yes." "How much starch does it contain?" "None." "What! No starch?" "None!" His friend, Profesor Wood, however, said the bread contained sixty per cent of sugar-forming material. Gluten flour from another manufacturer had a low sugar-forming percentage one year and a high one the next.

If alcohol is considered desirable it is best given in the form of whiskey or brandy, a *brut* champagne, Moselle wine, or one of the California hocks, some of which contain practically no sugar.

The author has never used the skimmed-milk cure as advocated by Donkin. To remove the fat and leave the sugar does not seem consistent with common sense. He concedes that it has worked well in some cases, but wonders if the explanation does not lie in the fact that these patients had been eating far too much, and would have done equally well under a diet judiciously restricted in quantity as well as quality.

A day of starvation once every two or three weeks is very useful in some cases. Austin Flint's plan of keeping a patient in bed from Saturday night until Monday morning fasting has seemed a good one. If hunger is felt a little beef tea

may be a comfort without really invalidating the fast.

The bowels should always receive careful attention—all the more so if acetone and diacetic acid reactions are present in the urine. The skin also should not be neglected. Hot or vapor baths at home, followed by active friction, a Turkish or Russian bath at a well managed establishment, if the general state of the patient permits, are useful adjuvants, especially if the skin be harsh, dry, and inactive. Ralfe thinks he has succeeded in preventing impending coma by the hot bath. In milder cases, with the skin still relatively active, the tonic effect of a daily cool or cold bath, provided that reaction be prompt, thorough, and maintained, is of service. Diabetics are sensitive to cold, and wool or silk underclothing of light or moderate weight is usually desirable. We generally err in this country in the colder season by wearing too heavy underclothing. We keep our houses at summer temperature, and voluntarily load ourselves with clothing which we would think justified revolution if a czar compelled its adoption. A diabetic should have several overcoats of varying thickness and warmth, and can scarcely be too well wrapped up while drivng in an open carriage, the only form of conveyance really fit to drive in except in stormy weather.

Worry and anxiety are to be avoided as far as possible. Such avoidance is, alas! only too often easier to enjoin than to secure; but we must do our best. The man of large affairs and responsibility must be helped to systematize his work, to throw every possible detail on subordinates, and to shorten his working hours. How many of us inspect the down-town offices of our patients in active business in order to remedy defects of light, ventilation, and heating of the apartments where more time is passed than anywhere save in the bedroom? In many cases the sum of small advantages forms a large aggregate, and sunshine and open fires are better classed among the greater than the small advantages. In a word, we are dealing with a class of people whose resistance and vitality are more or less diminished; in many of whom, we have reason to believe, the nervous system is especially at fault. The desirability of moderating nerve strain is therefore ob-

Muscular exercise is useful directly, in that it burns sugar; indirectly, in that it aids blood and lymph circulation. It is therefore peculiarly adapted to diabetics, provided that thought and intelligence govern its use. In excess it is potent for harm. Outdoor exercise is far better than in any confined space, if the condition and circumstances of the patient permit. As to the form—walking, golf, tennis, horseback—it must depend upon the purse and taste. We are all so constituted that what we enjoy is, on the chances, better tolerated than what we dislike. Calisthenics and the various forms and degrees of massage, carefully adapted to the individual patient, are for the severer cases. Patients debilitated from any cause rightly ask direction as to the amount of exercise they can take. If the intelligent coöperation of the patient can be secured better results will follow, even in sanitarium treatment; and most diabetics are not, and cannot be, under constant supervision. The best rule the author has been able to formulate is the following: The patient is told, "You exercise; you feel tired; you rest an hour and fatigue passes. That fatigue was physiological, healthy, beneficial. If, on the other hand, after you rest you are still tired, you have done too much."

IS IODIDE OF POTASSIUM A SPECIFIC IN LOBAR PNEUMONIA?

Under this questioning title ALTSHUL in the *Medical Record* of March 26, 1904, recites his views and results in connection with the employment of this drug in the care of persons suffering from this disease. He tells us in none of his cases was there the least semblance of a crisis, the invariable termination being by lysis. This applies to both temperature and general condition of the patient. This gradual change was remarkable, as usually about eighty per cent of the cases terminate by crisis. The most probable explanation of this difference seems to be that the antiseptic and bactericidal action of the drug inhibits the growth of the pneumococcus, hence there is a diminution of the toxins produced. These toxins being in circulation in but small quantity, their effect is readily counteracted. The control of the symptoms alone through the action of the drug is hardly sufficient explanation for the change from crisis to lysis. [This

In spite of the generally favorable action of the drug, the duration of the disease was not shortened.

The temperature even in cases of apical pneumonia was never very high, rarely exceeding 103°, never above 104°, when treatment was commenced early in the disease.

Complications, endocarditis, pericarditis, edema, embolism, etc., were never met with.

If the treatment was commenced within the first thirty-six hours after the initial chill the disease was at no time of the violent type with marked cerebral symptoms. If these symptoms were already present when the treatment was instituted they rapidly disappeared, usually within twenty-four hours, and the patient, who previously was perhaps wildly delirious and intractable, became calm and rational. Headache was the exception, and when present was very slight and of short duration.

In all cases the patient treated with the iodide seemed to feel very much more comfortable, and seemed less ill than usual.

We have thus seen that, in addition to the symptoms, the very important and perhaps vital factors in the course and outcome of the disease, the toxemia, the leucocytosis, the blood's alkalinity, and the condition of the heart, are most favorably influenced, if not controlled, by the effect of the iodide.

The iodide of potassium is used in preference to the iodide of sodium, because of its more rapid absorption and its greater alkalinizing power.

Method of Treatment.—The following plan, with but trifling and immaterial modifications, is the one which the writer has pursued in all cases:

On the establishment of a diagnosis the patient immediately receives an initial dose of at least 10 to 15 grains of the iodide of potassium, which dose is increased by five or ten grains, according to the severity of the case, every two or three hours, day and night, and this is continued throughout the whole course of the disease, until defervescence is well established. However soft the pulse may become the dose is kept up, irrespective of the quantity which the patient is taking, the guide in our dosage being the regularity of the heart, as determined not by the pulse alone, as this may be irregular with a regular acting heart, but by auscultation of the heart itself, and the character of the heart sounds, particularly of the second pulmonic sound; if this be clear and distinct, we are accomplishing what we desire. The left ventricle will take care of itself, in the vast majority of cases, if we look after the right heart. Should there be any irregularity of the heart itself, which the writer has rarely found to be the case when treatment was commenced early in the disease, strychnine is given in doses of 1/60 to 1/40 of a grain every four or six hours, until the heart becomes regular, being found sufficient to control the irregularity. The iodide was prescribed in a 50-per-cent solution, and was administered in milk, thus combining medication with nourishment and necessitating less frequent disturbance of the patient. In this manner the author has in a large number of cases given from 1000 to 1500 grains per day; in one case as high as 1800 grains. Dr. H. T. Prentiss, of Holyoke, Mass., reported to him a case in which he gave 3000 grains daily for about four days, and another patient, a child, to whom he gave 2100 grains daily for two days, with absolutely no signs of intolerance and with recovery from the disease in both cases.

At the commencement of this plan of treatment a slight coryza occasionally appears, but rapidly disappears if the dose be pushed.

In cases in which the disease at its onset is accompanied by marked gastric disturbances, the author has combined with the iodide the aromatic spirit of ammonia. The use of this agent has been suggested by Sir James Paget as increasing the tolerance of the iodide.

If for any reason it is impossible to give the iodide by the mouth its administration per rectum is indicated, or when this is not possible, or in extremely urgent cases, by subcutaneous injection. From experiments performed in the laboratory of Prof. William H. Park, to whom the author expresses his indebtedness for advice as well as for the privileges accorded him, he has found that concentrated solutions (1:4) are well borne by rabbits, and do not seem to cause much pain. Occasionally when two drachms of this solution were injected there was sloughing, but this was the exception, and the subcutaneous injections seemed to be well borne, both locally and generally. The author, however

suggests the deep muscular injection, when very concentrated solutions are necessary, as causing less pain, although subcutaneous injections are preferable, owing to their more rapid diffusion.

In treating the disease by this method, the fact cannot be emphasized too strongly that our guide in dosage must be the condition of the heart, its regularity, and the distinctness of the pulmonic heart sounds. The quantity of the drug given per dose or per day must not concern us, our only consideration being its effect on the heart. By this it is not meant to infer that we can keep on indiscriminately pouring down the iodide, without reference to the quantity, but that we must be governed entirely by the effect produced. The physician should increase the dose rapidly and persist until the desired result is obtained.

This plan of treatment requires the same judgment and circumspection in its administration as is necessary in every other therapeutic measure. From the author's experience and as a result of observations on this large number of cases of his own and his colleagues, failure to obtain favorable results will be attributable to faulty methods and lack of courage rather than to ineffectiveness of the treatment.

[We have abstracted this article because it is quite out of the ordinary line of thought in regard to this disease. We confess that we do not expect to employ it ourselves.—ED.]

ENURESIS IN CHILDREN.

LEWIS states his views as to this condition in the *British Journal of Children's Diseases* for February, 1904. The treatment of this complaint, which has for some years been successfully carried out by the writer, was suggested by the consideration of a similar condition which occurs in infants fed on starchy foods. Such children always pass a larger amount of urine than normal. Their nurses complain that they are always soaking their diapers. When their starchy food is cut off this symptom disappears. It is the same with the victims of enuresis. In most cases a rigid antidiabetic diet removes the symptom in a few days. The cause, however, due to a general depression of health produced by an excessive starchy diet, requires general tonic treatment at the same time. During the cure starchy food may usually be allowed for breakfast without "accidents" occurring at night. Without any other treatment hospital cases are relieved often at once, and finally cured, by being taken as inpatients and fed on the ordinary hospital diet. In private cases even small quantities of bread or cake, given at dinner or tea early in the treatment, cause the bed-wettings to recur. In about three to four weeks, sometimes sooner if the tonic treatment is pushed as well, a normal diet may be given without enuresis happening.

THE EXTRACTION OF TEETH UNDER CHLOROFORM.

The *Edinburgh Medical Journal* for March, 1904, states its editorial view of this matter in the following words:

From time to time the public are painfully impressed by a paragraph in the newspapers headed "Another Death from Chloroform!" A medical man was heard to remark recently that "it was a pity such notices were published and the public alarmed," but we cannot agree with this opinion. We consider the sooner the laity are alive to the risks they run, during so simple an operation as the extraction of a few teeth under chloroform, the better for all concerned.

The most recent case of death occurring under these circumstances which we have noticed is that of a young clergyman in the west of Scotland, who was put under chloroform in his own house, for the purpose of extracting a few teeth. Within a few minutes he fell forward and expired.

This is the fourth case of the kind we have known of within a comparatively small area during the last twelve months. All these patients died of heart failure, it is safe to assume, but whether they actually had an overdose or not we are unable to say, nor from our point of view is it of much moment. The point is, that they should never have been subjected to the risk of chloroform, but one of the now fairly numerous safer anesthetics should have been employed. For the past ten or fifteen years most dental and surgical journals have been urging the utter unsuitability of chloroform as an anesthetic in dental work, and still the medical profession, in North Britain at least, persist in

employing chloroform for the operation in question. In dental work the mortality under gas and ether is a negligible quantity, and year after year dental surgeons are being sent out, for the most part trained to administer this combination, and if the medical profession in Scotland refuses to wake up to the facts of the case the dentist will, in all probability, take the bull by the horns and dispense with the services of the medical attendant, if they are to be of so lethal a nature.

The administration of chloroform for the extraction of teeth should, and we consider soon will be, regarded as malpraxis.

REMARKS UPON "ETHYL CHLORIDE" AS A GENERAL ANESTHETIC.

In the *British Journal of Children's Diseases* for February, 1904, CHALDECOTT states that he has now administered ethyl chloride over five hundred times, and the conclusions arrived at are: (1) It is the best anesthetic known for what may be called "single-dose" cases, when the patient is anesthetized, the mask removed, and the operation performed without any further administration; (2) it is certainly worthy of an extensive trial in all minor operations; (3) it is a safe and rapid means of inducing anesthesia as a preliminary to chloroform or ether narcosis; (4) although its effects are transient it is doubtless a powerful anesthetic, and should be carefully administered, and the patients properly prepared.

PURE OLIVE OIL AND ITS USE IN THE TREATMENT OF CHRONIC DYSENTERY AND ALLIED CONDITIONS.

RUTHERFORD of the U. S. army writes in *American Medicine* of March 12, 1904, of his experience with olive oil in therapeutics.

1. The internal administration of olive oil largely increases the flow of watery bile.

2. The normal liquid bile possesses certain physiological properties: (*a*) Its presence in the intestine favors the absorption of fats; (*b*) it stimulates intestinal peristalsis; (*c*) it acts as an intestinal antiseptic, both directly and indirectly. "Quite recently a further function of the bile has been discovered, namely, that of dissolving very readily certain specific bacteria of a pathogenic character" (Herter). It is still further contended for bile that it has the property of reënforcing the ferment action of the pancreatic juice.

In this connection it is of quite equal importance that, following upon the internal administration of olive oil, typical cases of chronic dysentery, practically without exception, show changes in their condition as follows:

1. Positive evidence of increased quantities of bile in the feces.

2. Decrease in the number of daily bowel movements and marked improvement in the character of the same.

3. Gradual cessation of signs of fermentation and putrefaction along the gastrointestinal tract and consequent subsidence of pain and tenderness.

4. General systemic improvement—gain in appetite, repair of digestive facilities, symptoms of improved nervous system, and rapid gain in weight and strength.

5. Apparent positive cure after an average time of two months and upward, with few recurrences up to date.

THE TREATMENT OF SENILE PNEUMONIA.

COHEN in a lecture reported in the *New York Medical Journal* of March 12, 1904, states that it is rarely wise to wake the patient, either for food, for medicine, for bath, or for any other application. Save in exceptional instances, sleep will do more to favor recovery than the agent for whose sake it is interrupted.

At times in the course of these cases oxygen is to be given by inhalation. Oxygen is a remedy of very great usefulness in pneumonia, typhoid fever, and in septic conditions generally, if it is used properly. The mistake usually made is to wait until the patient is three-fourths dead, or perhaps nine-tenths dead, and then give him oxygen. Oxygen will not revive the dead. It does not work miracles, but, given to the patient in time, it will very often prevent death in severe cases, and will always give much relief; in cases of moderate severity it tends to render the course milder, the recovery more sure. If we give oxygen we must not be stingy with it. If we want to produce results we must not only give it in time, but give

hours is playing with it. Such a method may ease the mind of the doctor and soothe the distress of the family, but it helps the patient very little. Oxygen must be given freely over long periods, unless the patient is distressed by it, as rarely happens, or unless it is necessary to put the patient to sleep and the oxygen interferes with his sleep. As a rule it promotes sleep, and often peaceful sleep continues during its use. Nitrous oxide may be combined with it as a sedative to cough and as a sleep-producer—about 8 parts of oxygen to 2 of nitrogen monoxide, or even 6 of oxygen to 4 of nitrogen monoxide—in cases in which opium, which is usually a dangerous drug in pneumonia, would otherwise be needed. The author usually employs the purified gas furnished under high compression in steel cylinders, to which a wash-bottle and inhaling terminal are suitably attached. The way to do is to turn on the oxygen and put the end of the inhaling tube either in the patient's nostril or in his mouth, according to circumstances, according to the permeability of the nasal passages, according to the consciousness and strength of the patient. It is better not to use a glass tube, except in the nostril, and either in nostril or mouth an iron or hard-rubber terminal is better, so that the patient cannot bite on it and break it. Turn on the oxgyen at a convenient rate. We determine this by observation—that is, by watching the flow of bubbles through the water in the bottle. The bottle should never be more than half-filled with water; it should not be two-thirds full, because by a sudden spurt in turning the key or through some disarrangement of the apparatus the oxygen may come very suddenly in too great volume and carry water along with it, choking the patient. There must be a sufficient oxygen space above the level of the water. If the oxygen is allowed to bubble over quietly we can judge by the rapidity of the bubbles as to the rate of flow of the gas. This is a matter of experience, *secundum artem*. The writer has never counted the number of bubbles in the minute, but judged simply by the eye. In a severe case let the oxygen run for an hour, or for six or twelve or forty-eight hours if necessary, removing it only when needed to give the patient rest or sleep, to feed the patient, or to carry out other portions of the treatment.

After two or three hours of continuous administration of oxygen there will usually be sufficient improvement to warrant its intermission for a couple of hours. In milder cases a half-hour's use of the oxygen every second or third hour may suffice. We cannot say, give the patient oxygen for ten minutes at a time every two hours, or give the patient half a bag at a time every three hours, or give him two bags at a time every half-hour. Its administration must be entrusted to skilled hands, and the dosage must be regulated according to circumstances, and may thus be great or little, long or short, as the case may require at the moment.

A NOTE ON PRIMARY ETHER ANESTHESIA FOR SHORT OPERATIONS.

To the *Northwestern Lancet* of March 15, 1904, BROWN contributes a paper in which he calls attention to the value of "primary anesthesia." He says that the fact that short and painless operations can be done under primary ether anesthesia has long been known, but imperfectly appreciated by the majority of practitioners. Early in the present year an article by some foreign writer was abstracted in the *Journal of the American Medical Association,* in which, after an experience of fifty cases, the method was highly commended. The writer claimed that even prolonged operations could be satisfactorily done by inducing the primary effect of the ether at intervals as required.

In view of the fact that general surgical anesthesia involves serious danger to life and health and that such danger is especially great in operations on the throat, the author's custom has been to employ local anesthesia wherever possible, but the most painstaking use of local means leaves much to be desired when tonsils are to be snared or adenoids removed with the mildest means possible —the Gradle adenotome. Glad of a method which might relieve his little patients of some of the horrors of these operations, he has employed the primary ether anesthesia since June 1 in thirty-two operations on 21 different patients, mostly young children. The ether was adminis-

tered by the drop method with the ordinary chloroform mask, from 8 to 12 grammes being used in from one and a half to two minutes, and in most cases following one or two applications of 20-per-cent cocaine. In a few of the later cases, among which was the removal of adenoids of four-year-old twin babies in his own family, the cocaine was omitted without apparent disadvantage.

The children have uniformly taken the ether without objection, breathing deeply with the mouth open, and at the proper time allowing the instruments to be introduced without the necessity of a mouth-gag. Vomiting that was attributable to the ether has not occurred in any case, nor has undue hemorrhage. With two exceptions the operations have been done at his office, the patients reclining on a lounge for an hour before going home. Some of these patients said they were hurt badly, some made but little complaint, and others admitted that they suffered no pain. A few days ago, having occasion to do an internal Wilde's incision, in a case of acute mastoiditis in a four-year-old boy, the author applied the "cocaine, carbolic acid, and menthol mixture," administered ether for one and a half minutes, and then freely incised the membrana tympani and the posterior superior wall of the canal. The boy sat quietly, made no outcry, and later said he had suffered no pain from the operation.

ADRENALIN—PHYSIOLOGICAL AND THERAPEUTIC NOTES.

In a critical summary upon this subject contributed to the *Scottish Medical and Surgical Journal* for March, 1904, GULLAND states that adrenalin has now been used extensively for hemorrhage from the alimentary canal, both stomach and bowel. The dose (of the 1-in-1000 solution) has varied from 6 drops four times a day to 30 drops every three hours, according to the severity and urgency of the condition. It has also been used subcutaneously in doses up to one cubic centimeter every two hours with good effect, and further by enema.

When the remedy is given by the mouth, neither glycosuria nor any unpleasant raising of blood-pressure has [illegible] importance is that adrenalin has a distinct effect in relieving atony of the muscular wall of the stomach.

It has also been used with excellent results in all forms of hemoptysis in the same doses and ways as for hematemesis. It has been injected into the parenchyma of the lung in doses of 8 to 10 drops and into the trachea by puncture in doses of one cubic centimeter. It seems doubtful, however, whether these latter methods have any advantage over the more usual ones.

In asthma it is sometimes of service, either as a simple spray or application of the solution to the nasal mucous membrane, or as an ointment combined with vaselin and lanolin.

Adrenalin has of course been very widely used in diseases of the larynx and nose, partly in order to cause anemia, partly to assist in the production of anesthesia, and partly because inflamed and edematous mucous membranes shrink so greatly with its use that a much better view is obtained. It can advantageously be combined with cocaine, and if a more continued effect is desired than can be obtained by painting the parts with the solution, a salve of one part of solid adrenalin to 500 parts each of vaselin and lanolin may be used. The solution applied locally is specially useful in edema glottidis, and in uncontrollable epistaxis, in which tampons soaked in the solution may be applied, and the drug also given internally in doses of 20 drops every two hours.

Some writers have, while others have not, observed secondary hemorrhage after its use; urticaria has been seen to occur after endonasal application.

In ocular therapeutics adrenalin has been used in all conditions associated with inflammation and swelling, and operations followed by bleeding; it is very often combined with cocaine or with such remedies as sulphate of zinc. Generally the ordinary 1:1000 solution is too strong; solutions of 1:3000 down to 1:10,000 are preferable. It should not be used in glaucoma, as dangerous increase of ocular tension has been observed. [This is denied by some writers. —ED.]

Opinions are divided as to its usefulness in gynecology. Some have used it [illegible]

either internally or locally on tampons; others have not found it serviceable. It is always of value, however, as a preliminary application where the use of caustics is interfered with by hyperemia and hypersecretion. The local application of a 1:3000 solution has been found useful in pruritus vulvæ.

In surgery it has been found extremely useful in small operations. The hypodermic injection of 8 drops of the solution, even if weakened down to 1:100,000, causes sufficient anemia to allow of the opening of boils and abscesses, and similar small operations, without loss of blood. A certain amount of local anesthesia is also produced, and if it be combined with cocaine, the anesthetic action of the latter is greatly strengthened, while cocaine poisoning is rendered practically impossible because of the power of adrenalin in preventing absorption. Even large nerve stems can be rendered insensitive in this way. A useful proportion is 17 drops of a one-per-cent solution of cocaine to 3 drops of the ordinary adrenalin solution or a weaker one. The amount used must of course vary with the area to be anesthetized.

Of great importance are the experiments which have been made on animals in regard to the use of adrenalin-cocaine for spinal anesthesia. It is found that after subdural injection of 8 drops of the ordinary adrenalin solution, as much as a grain and a half of cocaine can be injected into the spinal canal without any bad effect—that is to say, five times an otherwise fatal dose. These results have been confirmed in human surgery, and much of the objection to this method of producing anesthesia has thus fallen to the ground.

In genito-urinary surgery adrenalin is also of value, not only for checking hemorrhage from the bladder by injection, but in small operations, such as slitting the meatus and cystoscopy, where the instillation of a few drops allows the operation to be performed without hemorrhage or pain. Temporary stricture of the urethra resulting from congestion or spasm can be removed by injecting a few drops of the solution.

The power of adrenalin in increasing the blood-pressure has been utilized in the treatment of shock from severe injury, by the repeated intravenous injection of one cubic centimeter of a weak solution (1 in 50,000).

In hemophilia the results have not always been satisfactory, but they are better in such conditions as purpura hemorrhagica. The treatment of Addison's disease with adrenalin has not met with success.

THE URINE IN ETHER ANESTHESIA.

The *Postgraduate* for March, 1904, contains a paper by CHACE on this topic. After discussing the results of examining the urine in 125 cases he concludes that the fact that ether is an irritant to the kidney, and that the urine is more concentrated after anesthesia than before, emphasizes the necessity of having the ether reach the kidney in as diluted a form as possible. The custom of encouraging the patient to drink freely of water before the operation and as soon after as the stomach will permit seems to be a good one; but the plan of giving saline cathartics after the operation, which tend to deplete the system of fluids and concentrate the blood, is one, perhaps, still open to question.

THE TREATMENT OF COUGH IN ADVANCED CASES OF PULMONARY TUBERCULOSIS.

In the *Scottish Medical and Surgical Journal* for March, 1904, KING gives the following advice as to this state: In early, and even in many advanced, cases of pulmonary tuberculosis, cough in the early morning is salutary, and requires no treatment whatever. The accumulation of secretion during the night requires to be removed, and this is accomplished by the act of coughing. In some advanced cases this cough may become excessive and morbid, and may bring about a condition of extreme exhaustion. Some of the worst of these cases occur in the sanatorium, where judicious treatment has produced very comforting and beneficial results. These cases are frequently accompanied or followed by vomiting of mucus or bile. Undoubtedly the best thing to do is to make the patient sip a tumblerful of hot milk, to which has been added 15 to 30 grains of sodium chloride, on waking in the early morning. This simple remedy the author considers

infinitely superior to any other. This not only eases but cuts short the cough. If the patient drinks the milk rapidly instead of sipping it, the cough is usually aggravated. If this has failed, he has sometimes succeeded by gargling the throat with a tumblerful of cold water, to which has been added one drachm of soda bicarbonate.

Excessive cough during the night-time usually wakes the patient up just after he gets off to sleep, and may continue more or less throughout the night, disturbing his rest and exhausting his strength. In its more troublesome form it is met with in the "chronic bronchitic and emphysematous types." The author has tried many remedies here—*i.e.*, morphine, apomorphine, codeine, apocodeine, heroin, atropine, and terpene hydrate, alone and in various combinations. He thought terpene hydrate would suit this class of cases, but unfortunately it was not successful. He found that by far the best remedy was a pill of ipecac and squill. He usually started by giving one pill at bedtime, and if not sufficient, which was often the case, gave two pills. In his hands no remedy has given more gratifying results than this one.

Excessive cough on getting into bed is usually stated to be due to the patient coming into contact with the cold bed-clothes, etc., but this is not the only cause. The bed may be thoroughly warmed and yet this harassing cough continue. In such cases it is thought to be usually due to the irritation of the secretion on the bronchial tubes, owing to the patient's sudden change of posture. The best thing to do in such a condition is to make the patient half recline in bed before lying flat down. This the author has found to succeed admirably in some cases. If this fails, sipping a glass of hot milk may be tried, which soon promotes expectoration, and after some coughing the patient gets relief. Care must be taken that the milk is not too hot, otherwise a restless night will ensue.

Cases which demand special attention are those of the "chronic bronchitis and emphysematous types," in which the cough is very irritable and accompanied by an excessive watery and frothy secretion. It is usually found in men of powerful build with fairly extensive disease. King was led to try nearly everything in his endeavors to alleviate these most distressing cases, with but poor results. He had hoped that atropine would have been of much service here, but it failed. At first under its administration the cough was somewhat easier and the secretion was much lessened—in most cases to one-half or more—but after a time the cough got gradually worse, owing no doubt to the irritation set up by the dryness of the pharynx. The various inhalations—*i.e.*, turpentine, creosote, eucalyptus, etc.—all failed in these cases. The best remedy was undoubtedly the mistura ipecac cum scillæ of the Brompton Pharmacopœia:

℞ Potas. citrat., gr. xv;
Liq. ammon. acet., ℥ij;
Tinct. scillæ, m. xij;
Vin. ipecac., m. x;
Aq. anisi, ad ℥j.

But even this did not give very satisfactory results.

Here a note of warning is added about the inhalation of the vapor of creosote. In the treatment of "pure bronchiectasis," the inhalation of creosote vapor in most cases, curiously enough, stimulated the appetite, but the author noted that in cases of "tubercular bronchiectasis" the very opposite occurred, namely, that the appetite was seriously impaired in many cases, with disastrous results.

The same statement is made with regard to cases of "pulmonary tuberculosis," and the author asserts that he should be driven very hard indeed for a remedy in these cases until he would sanction the use of creosote inhalations, which seem to be coming into vogue at present, and strongly warns physicians against their use.

REMARKS ON THE MEDICAL TREATMENT OF CHOLELITHIASIS AND CHOLECYSTITIS.

The *Buffalo Medical Journal* for April, 1904, contains an article on this topic by STOCKTON. He holds strong views in regard to the questions at issue and states that while it is not only useless but reprehensible to delay the assistance which surgical intervention alone can bring to many cases, we are not yet in a position where it is proper to demand a cholecystotomy as soon as a diagnosis of gall-stones has been made. The

majority of cases can be greatly benefited by appropriate medical treatment, and many will completely recover by medical treatment alone. That which seems of the most importance in this medical treatment is the adoption of a regimen that will prevent the appearance of a lithemic condition, a state which experience teaches is likely to induce an irritable gall-bladder and precipitate a seizure of biliary colic. In other words, the patient should not be allowed to become constipated, to have scanty and acid urine, to develop gastric derangement, in which a coated tongue, disagreeable taste, flatulence, and epigastric distress are familiar symptoms. Such patients should be made to eat simply, drink freely of water, pay special attention to the activity of the skin, exercise moderately and progressively, avoid excesses of all kinds, and assist in the elimination of waste matters by a course of alkaline saline waters, with the judicious taking of some preparation of salicylic acid. The plan selected must depend somewhat upon the resisting power of the patient, the condition of the blood, and the viscera; and the physician who understands how to avoid the recurrence of bronchitis in one subject to uricacidemia will be likely to understand the best method of preventing an irritable gall-bladder. When the attack appears the spasm must be relieved, and for this perhaps morphine and atropine will be necessary.

When the pain is not intense it may be relieved and the attack aborted by the free administration of salol, sodium salicylate, aspirin, antipyrin, and similar preparations. The patient must be kept absolutely quiet, the alimentary tract emptied carefully without producing too much intestinal peristalsis, and food must be denied. The drinking of water and sweating the patient are useful measures, and in a few instances the administration of pilocarpine has for more than one reason seemed to be of value.

As to the use of olive oil in relieving the symptoms of irritable gall-bladder we have a good deal of recorded experience, and for the most part it is favorable. Some advise very large, others small, doses. The plan which seems to be most serviceable is to administer a teaspoonful of oil every two hours for several consecutive days. In case the oil leads to derangement of gastric digestion it should be abandoned.

COCAINE AND ADRENALIN.

In dealing with the action of local anesthetics H. BRAUN (*Berliner Klinik*, January, 1904) speaks chiefly of cocaine. Introduced in 1884 by Köller, this medicament has gradually gained a firm place in our list of therapeutic agents. Corning pointed out that any drug which possessed a marked affinity for the peripheral nerves must act powerfully on the heart and central nervous system, if it enters the circulation in concentrated solution. Cocaine is found to have a local toxic effect on all forms of protoplasm, and if it is introduced or obtains access into the circulation in sufficient quantities and sufficiently rapidly it exerts a general poisoning. It therefore follows that the slower it is absorbed from the point of injection, the more active it will be as a local agent. Constricting an extremity will be sufficient to alter a fatal poisoning into a mild one, and cooling the part, for example, with an ether spray, also delays the resorption of the solution. A more important means of delaying the absorption is found in the action of adrenalin. It has been found that mere traces (0.000000245 gramme of an extract of the gland per kilo, for a dog) will cause a rise in blood-pressure. The action of the suprarenal capsules depends on the contraction of the blood-vessels, by direct action on the contractile tissue of the vessels. It acts powerfully locally. Injecting solutions of adrenalin in strengths of 1 in 1,000,000 subcutaneously, the tissue becomes bloodless, and when stronger solutions are employed even arteries and veins of medium size scarcely bleed when cut through. Even large arteries can be almost completely contracted by the injection of strong solutions. Very small quantities of adrenalin with cocaine increase the local anesthetic action of the latter. In employing this combination for local anesthesia it is necessary to determine a safe dosage. On the mucous surface the drug does not act toxically; Doenitz found that ½ mgr. of adrenalin in a solution of 1 in 2000 could

be injected into the subdural sac of human beings without ill effect. Subcutaneous injections, however, have to be carried out with great caution, and in order to fix a safe dose Braun experimented on himself; 0.0005 gramme in solution of 1 in 1000 produced general symptoms. Five minutes after the injections he felt a sense of oppression on the chest, palpitation, and had to lie down. These symptoms passed off in one and a half minutes. The drug produced less effect on Doenitz. If one injects ½ mgr. of adrenalin with cocaine, the patient may feel a tightness of the chest, but this passes off without any further symptoms.

Braun recommends using the solution of adrenalin in a dilution of 1 in 10,000, and points out that very weak solutions of cocaine will have the same anesthetic effect if combined with the adrenalin as strong solutions without it. One has to be careful in using the mixture to avoid the occurrence of secondary hemorrhage. If the adrenalin acts strongly, even large vessels may be firmly contracted, and may escape the notice of the surgeon. If they are not ligatured, they will naturally bleed later. It is therefore necessary to plug the wound or to seek every vessel of any size, before closing it. Care has to be used, too, with cocaine when introduced into the bladder, as a one-per-cent solution may give rise to alarming symptoms. The addition of adrenalin to very weak solutions of cocaine will be found advisable.

Braun describes the method which he employs for anesthetizing the female urethra. He dips a plug of cotton into one cubic centimeter of a one-per-cent solution of cocaine, to which three drops of a 1-in-1000 solution of adrenalin have been added, and swabs out the urethra with this. For infiltrating according to Schleich, he finds that a solution of cocaine of 0.01 per cent, with 3 to 5 drops of adrenalin solution (1 in 1000) to each 100 cm. added, is absolutely sufficient. He points out that an inflamed region should never be directly infiltrated, but one should always make a circular infiltration. The same solution can be used for Oberst's method of injecting into the subcutaneous tissue in the neighborhood of nerve trunks, for anesthetizing a finger and the like. For extraction of teeth he recommends 0.01 to 0.015 gramme of cocaine in from 1 to 2 cubic centimeters of saline fluid, with the addition of from 2 to 5 drops of adrenalin in solution. Half of this is injected behind the tooth and half in front of it, about the level of the fang, and as near the periosteum as possible. The condition of the tooth may be as bad as possible; with this injection one will be able to extract it without pain. Lastly, he mentions Doenitz's experiments with intradural injections of one cubic centimeter of adrenalin (1 in 1000), to be followed by 0.0075 to 0.015 gramme of cocaine. The anesthesia is said to be very satisfactory after this method, and no ill effects were noted.—*British Medical Journal,* March 26, 1904.

THE NECESSITY OF A KNOWLEDGE AMONG GENERAL PRACTITIONERS OF THE DIAGNOSIS AND TREATMENT OF GLAUCOMA.

Roosa in the *Medical Review of Reviews* of March 25, 1904, says when the eyeball is in a state of increased tension, so that it is sensibly hard by comparison with normal eyes to the fingers placed on the closed lids, there is either primary or secondary glaucoma. In addition to this chief symptom, which, even if no other objective one exists, marks the disease as glaucoma, will generally be found a redness of the eyeball in the circumcorneal region, a dilated pupil, a watery eye, and perhaps very great deterioration of vision, with failure of accommodation. In addition to this there may be an important subjective symptom—a halo around lights. This halo is probably dependent upon changes in the corneal epithelium. Rainbow colors, seen especially about a candle flame or the like, are a subjective symptom, but a very suspicious and alarming one. If we add to the picture the very important fact that patients generally suffer severe pain of a neuralgic character, and that the eye is suffused and the lids perhaps swelled, we have the disease acute glaucoma, which ought at once to receive operative attention. If the diagnosis be promptly made by the general practitioner, the means are at hand to arrest the progress of the disease until the specialist can perform the sight-saving operation. It is a great misfortune that

attacks of glaucoma or increased tension of the eyeball are often overlooked. Sometimes the acute symptoms, and apparently all the symptoms, subside. But really only the severe pain, so often called "neuralgia of the eye," the circumcorneal redness, the swelling of the lids may have disappeared, while impairment of vision, increased tension and cupping of the optic disk remain, so that before the next acute attack the disease has made an insidious progress, which lessens the chances of cure.

This is the condition for which Graefe proposed, and first of all the world successfully tried, iridectomy. The condition remains curable to this day. It has only been the extension of the treatment to the chronic form of glaucoma that has brought iridectomy for glaucoma into disrepute. Perhaps to say "into disrepute" is strong language, but, at least, into a very doubtful idea as to its efficiency in many cases of increased tension of the eyeball without acute symptoms. This doubt is well placed. Iridectomy in chronic glaucoma has none of the efficacy that obtains in the acute form of the disease. Hemorrhagic glaucoma, which occurs sometimes in the course of chronic Bright's disease, even in the acute form, forms another of the exceptions where iridectomy is interdicted. But it often becomes necessary in chronic glaucoma, when the sight is lost, and there are occasional subacute exacerbations, with troublesome symptoms—of halo about lights, and uncomfortable sensations of varied kinds in the eye, besides the pain—to do something to relieve these symptoms. Operations then are often worse than useless. In the writer's opinion it is very bad practice to operate, in any way, upon a sightless glaucomatous eye, with a hope of relieving pain, except to remove it or its anterior portion. It is in these inoperable cases, a diagnosis having been made, that eserine first of all, cocaine and pilocarpine next, may play the very important part of arresting the acute symptoms until the specialist comes in. But if the disease be mistaken for iritis or simple neuralgia, and atropine or any other mydriatic be used, a few hours may suffice to put the case beyond hope. Here, as in acute glaucoma, the myotics or tension depressors may play a very important part. In acute tension the myotics are used until iridectomy can be performed. In sightless eyes they are also used, although the operation should not be performed, because no operation but enucleation of the eyeball offers anything for the relief of the pain. The applications to the eyes of myotics, either pilocarpine or cocaine, or best of all eserine, and as recommended by Panas, in oil, often afford an efficient remedy. The use of eye-drops in oil has long been known and practiced, being first recommended in this country by Andrews and Green. But it is believed that no systematic attempt to use oily solutions of eserine in large doses, two or even four grains to the ounce, and for the purpose of reducing the tension and relieving the pain in operative glaucoma, had been made until the advice was given to do so by Panas. Some cases are reported by Panas where he thought an operation was indicated—cases of chronic glaucoma, with acute exacerbations, where the use of strong oily solutions of eserine, although intended to be employed temporarily, effected a cure.

In conjunction with some of his colleagues in New York, among others Drs. Emerson and Irwin, the writer has given this means of treatment a fair trial, and thinks it ranks among the best for inoperable cases of glaucoma, and in chronic glaucoma he is rather inclined to increase the field of inoperable cases than to diminish it. He thinks the claim is a just one that these oily solutions are more rapid in action and more durable in effect. They are employed three to four times in twenty-four hours, and followed by fomentations of water for, say, twenty minutes.

This subject will not be at all complete unless another great danger in making a false diagnosis in glaucoma is dwelt upon. While mydriatics, especially atropine, will save cases of iritis and keratitis, and be of no damage whatever in choroiditis, in glaucoma they are of the greatest harm, and may even excite the disease when it has not before existed. The general practitioner ought, for this reason, among the many others, to be able to diagnosticate glaucoma, lest he aggravate the conditions by dropping atropine in an eye having the prodromal symptoms of glau-

coma, or even induce it in a suspicious case. While atropine is one of the very best remedies, of the widest usefulness in ophthalmology, it is of the greatest harm in glaucoma, as may be many mydriatics.

THE TREATMENT OF HEMOPTYSIS.

FRANCIS HARE in the *Australasian Medical Gazette* of February 20, 1904, reminds us that in the last of a series of papers on the mechanism of the paroxysmal neuroses, published in the *Australasian Medical Gazette* for October, 1903, he referred incidentally to the treatment of hemoptysis by inhalation of amyl nitrite—a method of treatment deduced from the physiological principles of the circulation, systemic and pulmonary. Two illustrative cases were given. In the first, hemoptysis occurred in a man suffering from mitral insufficiency, and was proximately due to cutaneous vasoconstriction from chill. The administration of one capsule of amyl nitrite by Dr. C. S. Hawkes terminated the bleeding instantaneously. In the second, two attacks of hemoptysis occurred on the same day in a phthisical subject, and in both the bleeding was instantaneously stopped by the same drug. Manifestly in phthisical hemoptysis there is in operation one of the most highly vicious circles in pathology—a circle which is largely responsible for the profuseness and continuance of the hemorrhage. The intrapulmonary irritation of the effused blood causes cough; each act of coughing, like any other sudden exertion, raises the blood-pressure; each rise of blood-pressure is apt to induce fresh hemorrhage; and so on, the circle continuing to revolve in many cases until the loss of blood has been sufficient to reduce the blood-pressure materially, and thus terminate the hemorrhage. This natural cure of hemoptysis was at one period in the history of medicine imitated by physicians who resorted to venesection in this emergency, a somewhat expensive but by no means irrational imitation. The treatment by amyl nitrite is another imitation, less complete than venesection, but much more economical. The vicious circle is broken through at the same point and by similar means, namely, reduction of the general blood-pressure; but the blood is saved instead of being lost; consequently the procedure may be repeated as often as is necessary.

The point at which the vicious circle is broken through is of the greatest importance. Too often, the writer believes, he has yielded to the temptation to smother the cough by a hypodermic injection of morphine. The resulting cessation of cough tends undoubtedly to the cessation of hemorrhage, but the blood already effused is retained, decomposes inevitably, and not rarely induces septic pneumonia, high temperature, and prolonged exhausting illness, which may end fatally. This is the history of so many cases which seemed under open-air treatment on the road to recovery that the author had come to regard hemoptysis as a grave misfortune; but if amyl nitrite proves efficient as a hemostatic, the hemoptysis of phthisis will be largely freed from its subsequent as well as its immediate dangers, for the action of the drug is a safeguard against retention. It is the influx of blood to the ulcerated lung tissue, not the efflux from the air-passages, which is checked, and the uninterrupted continuance of cough assures the rapid evacuation of blood already effused. In none of the writer's cases, so far as could be ascertained, was there any retention of blood; in none of them certainly was there the least subsequent additional rise of temperature or other complication.

DIET IN TYPHOID FEVER.

The *Intercolonial Medical Journal* of February 20, 1904, contains an article on this subject in which HERRING strongly advises more food for these cases. Ten years ago it was taught that the typhoid fever patient should be fed on milk and beef tea; that if the milk disagreed, it was to be peptonized, and the beef tea withheld if there was any diarrhea. In other words, only a starvation diet was allowed. It is believed that at the present time every school of teaching in London lays down the law of getting the greatest amount of nourishment possible into the typhoid patient, and the dietary is something as follows: Water, milk, beef tea, broths, soups (cooked with vegetables), coffee, cocoa,

lemonade, soda water, lemon drinks, squash, orange juice, beer, egg-flip, and "pap" foods and jellies in variety.

That the advantages of this change have not been generally realized by the profession is shown by the common adherence to the old diet.

It is argued by some that the typhoid patient has no taste; that milk and beef tea are good, safe foods, and easily prepared. The logic is faulty, for a typhoid patient should not be allowed to lose his taste—that is a sign he is doing badly; and if he be fed on a mixed diet from the start, he will not lose his appetite, but will relish his food. Further, milk in a hot climate is the most unreliable of foods, and may be so disliked as to be positively harmful. More than one patient has been observed to vomit milk while taking other things well.

Liquid diet is in common use. But it is when one gives so-called solid food that one may expect to be called upon for authority. The writer therefore gives us Dr. Hutchinson, an eminent authority upon dietetics. Why should not typhoid patients have solid food? What is the difference between a solid food and a liquid food? Surely a solid which is soluble only needs solution to become a liquid. All food practically becomes liquid in the ileum, where the typhoid ulcers are. Why then should the patient not have soluble solids? One often hears a youngster refuse liquid food, and ask for "something to bite." Why should he not have it? The only need is to see that it is soluble, and if one follows the old maxim of avoiding "strings and stones and skins and bones" one is not far out. For instance, take a banana—three-quarters of it is water and the other quarter nearly all sugar, but it contains also 1½ per cent of proteid, 1 per cent of mineral matter, and something over ½ per cent of extractives, and only 1-5 per cent of cellulose, which is the only ingredient which could be imagined to hurt the ulcers.

Seven years ago, when resident surgeon to the Ballarat Hospital, the writer demonstrated very satisfactorily by a series of consecutive cases that typhoid patients could take tripe and bananas as a regular dietary, in addition to a varied liquid diet, with advantage. He has given them when obtainable to all cases since, or has given fish or rabbit instead, and has never had reason to regret so doing. In fact, he claims that patients will do better on such diet than on any restricted diet. "Something to bite" is not longed for, but they imagine themselves better than they are, and keep up their spirits accordingly.

The real test of treatment is the final result—the capacity for work in the patient. It is here the benefits of the varied dietary are seen. The patient is physically and mentally stronger all through his illness, and although the course of the disease may not be shortened, yet complications and sequelæ, such as faintings, collapse after bath, and other calls for stimulants, delirium, thrombosis, abscess, bed-sores, etc., are practically banished, while the more alarming complications of hemorrhage and perforation are in no way increased. The patient, in fact, gets up a convalescent instead of a wreck, and he will return to work in two or three weeks, while the milk-and-beef-tea patient will wait three or four months.

PRIMARY CARCINOMA OF THE APPENDIX.

NORRIS (*University of Pennsylvania Medical Bulletin,* November, 1903) reports a case of primary carcinoma of the vermiform appendix which was accidentally discovered during a pelvic operation on a woman twenty-seven years of age.

In nearly 60 per cent of the reported cases of cancer of the appendix there has been a definite history of previous attacks of appendicitis. The cases have been observed in patients varying in age from fifteen to fifty years, 65 per cent of the cases being observed before thirty. About 75 per cent of the cases reported occurred in females.

Pain is the chief symptom, and in moderately early cases it is usually of a dull, aching character, situated in the right iliac fossa. Tenderness was present in 71.4 per cent of the cases, and rigidity in 28.5 per cent. Fever and rapidity of the pulse is due, probably, more to coexisting inflammation than to the carcinoma itself. The tumor is rarely if ever palpable as such, though a mass is not infrequently present.

Loss of weight, cachexia, hematochezia, and low hemoglobin usually are found late in the disease and after the growth has involved the surrounding structures. Adhesions are frequently present in these cases. Fecal constrictions and strictures are not uncommon.

In some instances the carcinoma has been described as a tumor the size of a walnut, in other cases the size of a bean or pea, while in many cases no new growths could be demonstrated macroscopically. The carcinoma is situated usually near the tip; in about 15 per cent of the cases it was found near the base. In some cases the organ is the seat of acute suppuration or necrosis, in others it is the seat of catarrhal inflammation, while in still others little or no gross change can be seen. The similarity of the symptoms to those of appendicitis makes the diagnosis very difficult; fortunately, the treatment is the same in both conditions.

ANEURISM OF THE HEPATIC ARTERY.

KEHR (quoted in the *Journal of the American Medical Association,* Nov. 28, 1903) reports a case of aneurism in the right branch of the hepatic artery which necrosed and communicated with the cystic duct. The artery was tied with double ligatures and severed between them, immediately below the bifurcation. The aneurism, which was the size of a goose-egg, was exposed and cleared out. A tampon was then introduced. No other lesions were discovered. The patient made a good recovery, and there was no evidence of hepatic necrosis subsequent to the operation. Kehr suggests that symptoms of gastric or intestinal bleeding, with colic and icterus together, should lead to a suspicion of the possibility of aneurism of the hepatic artery.

CANCER OF THE STOMACH—OPERATIVE TREATMENT.

Basing his statements upon the statistics of cases of cancer of the stomach published by Krönlein and Mikulicz, MOYNIHAN (*Practitioner,* December, 1903) states that the results in cases of gastric cancer will be improved when exploratory operation is undertaken not to confirm but tion a growth is found to be obstructing the pylorus, or to be narrowing the stomach and causing an hour-glass condition, or if stasis of food has been a marked symptom, then gastroenterostomy will give very decided relief. If, on the other hand, the growth be confined to one or other of the curvatures, and if neither stenosis nor stasis be present, gastroenterostomy will give little or no relief; it will not prolong life nor give a greater degree of comfort.

The operation of gastrectomy in the hands of Mikulicz and of Carle and Fantino has given a lower mortality than gastroenterostomy. Its advantages as compared with gastroenterostomy are that it gives greater prolongation of life—ten or eleven months longer—and that it affords a greater degree of comfort to the patient. Though recurrence may follow, yet in the majority of cases the patient is relieved greatly by the removal of a foul, ulcerating growth, from the surface of which an offensive and septic discharge is constantly occurring, and from which hemorrhages more or less copious are often likely to take place. In the great majority of cases the growth will recur either locally or generally, but the question may arise as to whether gastrectomy should not be performed deliberately as a palliative operation even in cases where an early secondary deposit can be seen in the liver, or inaccessible or irremovable glands be found in the pancreas or along the aorta and vena cava. Gastrectomy possesses the following advantages as compared with gastroenterostomy: that in the most competent hands its mortality is not greater, but is even less, than the mortality of gastroenterostomy; that a prolongation of life for ten months longer than the period given by gastroenterostomy is the rule; that the comfort, the general health, the appetite, and the well-being of the patient are all emphatically better; and finally, that the patient has always a chance, even though it is of the slenderest, of a complete recovery from his disease. If all these are taken into consideration, there can be no doubt that the operation of choice will always be gastrectomy.

If, after the abdomen has been opened, it is found impossible or imprudent to attempt either gastroenterostomy or gas-

performing duodenostomy or jejunostomy. The scope of these procedures is very strictly limited, but in rare instances, when the prolongation of life for even two or three weeks is of the greatest importance, then either of these operations can be done with propriety. The operations are simple, speedily done, and cause little or no shock, and they can, if needful, be readily performed with cocaine anesthesia.

CBSTIPATION DUE TO OBSTRUCTION BY THE RECTAL VALVES.

MARTIN (*American Medicine*, Dec. 5, 1903) reports forty cases of valvular obstipation, all of which were operated upon two years or more ago.

The symptoms of hypertrophy of the rectal valve were very similar in all the cases. The patient is the subject of more or less chronic obstipation. He makes frequent partially successful attempts at defecation daily, and may experience an unrequited desire for stool. The patient acquires the reprehensible physic habit. At times the periods of obstipation are interrupted by periods of diarrhea. There is an ineffectual straining at stool, except for fluid feces.

Discharge of mucus is usually noticed. Later the diarrhea may occur with greater frequency. These symptoms may be accompanied by increasing degrees of flatulence and borborygmus, and from time to time the patient is subject to attacks of intestinal autointoxication, and finally he becomes neurasthenic.

On account of the non-sensitiveness of the rectal valve, the patient's sufferings are not commonly referred to this region. Symptoms of pain, aching of the iliac regions, backache, sciatica, hemorrhage, catarrhal and membranous proctocolitis, prolapse, hemorrhoids, fistulæ, etc., may be the sign of complications of the obstructing valve. Ultimately, symptoms of intestinal obstruction may become pronounced, and if the patient be unrelieved, the disease proceeds to a fatal termination.

Operation in these cases consisted of division of the hypertrophied valves. Two of the forty patients were not improved; one of these two cases had no complication, but the other was subject to recurrent invaginations of the sigmoid into the rectum. Five of the patients were improved, and six suffered from a recurrence of obstipation. The remaining thirty-three were cured.

Valvular obstipation may recur by reason of the development of hypertrophy in the valve which was not diseased at the time of operation.

LUPUS TREATED BY LOCAL APPLICATIONS OF TURPENTINE.

During the past year HOY (*Cincinnati Lancet-Clinic*, Dec. 12, 1903) has treated several cases of lupus with local applications of turpentine. Picric acid gauze or cotton was employed to keep the ulcer moistened with the turpentine. The lesions healed rapidly and satisfactorily in every case and have not recurred.

TRANSPLANTATION OF THE BICEPS TENDON FOR PERSISTENT CONTRACTION OF THE KNEE-JOINT.

MOULLIN (*British Medical Journal*, Dec. 19, 1903) reports the case of a woman thirty years of age, who suffered from contractures of both knees, due to subacute rheumatoid arthritis.

Weight extension was placed upon the legs, as the knees were contracted almost to a right angle; but after two months' trial the angle of flexion was scarcely lessened, and the hamstring tendons were as tense as ever.

Transplantation of the insertion of the tendon of the biceps, from the flexor to the extensor side of the joint, was then advised, in the hope that, by weakening one and strengthening the other, the balance of power might be restored and that the knees might be straightened and kept from recontracting.

An incision was made on the outer side of each limb, the tendon detached from the fibula, the quadriceps exposed, and the tendon of the biceps passed through a slit made in it, so that it lay upon the anterior aspect. A few sutures were passed through the two tendons to secure them, and the knees were fixed in their contracted position until the wounds were healed. The same weight extension that had been used without the least effect before was applied again, and the knees

began to straighten out at once. Eighteen months have elapsed since operation and there is no recurrence of the contractures. The patient is able to stand without support and walk about sufficiently to perform her ordinary household duties.

The operation is so simple and devoid of danger, and has succeeded so well in the present case, that the author believes it might be performed with advantage in other cases of contraction of the knee-joint, which persistently and obstinately relapse, whether arising from rheumatoid arthritis or other causes.

ANEURISM OF THE LEFT SUBCLAVIAN ARTERY TREATED BY WIRING AND ELECTROLYSIS.

DALAND (*Pennsylvania Medical Journal,* December, 1903) reports a case of aneurism of the left subclavian artery in which twenty feet of gold wire was introduced into the sac through a hollow needle, and a galvanic current, gradually increasing from one to eighty milliamperes, was employed for about 110 minutes. The pulsation and size of the tumor temporarily decreased and afterward increased, and death occurred on the twentieth day after operation, due to exhaustion produced by long-continued pain, and hastened by the formation of a thrombus in the left common carotid artery, caused by the pressure of the aneurism. The necropsy showed a cocoanut-shaped aneurism involving the entire length of the artery. Its cavity was occupied in large part by a clot in varying stages of organization, through which the wire was well distributed.

In discussing this case the author states that this operation is worthy of trial when medical treatment fails, and that the percentage of success will be greatly increased if the operation be not performed as a last resort.

The local increase of blood-pressure after the operation indicates the need for measures producing hypotension, such as absolute rest, low diet, diminished quantity of liquid, avoidance of excitement, venesection, nitroglycerin, or the nitrates. Gelatin should be employed regularly to increase the coagulability of the blood. These measures should precede the operation by at least a week, and should be continued after the operation for not less than two weeks.

DEPRESSED FRACTURE OF THE SKULL —OPERATIVE TREATMENT.

NICOLL (*British Medical Journal,* Dec. 19, 1903) reports six cases of depressed green-stick fracture of the skull. The fracture occurred during birth in four of the cases and during infancy in two. The oldest patient was four years of age at the time of operation.

The operation was similar in principle in all the cases—namely, inversion of the depressed area of bone. The scalp and pericranium were reflected in one layer; the depressed portion of the skull was cut out by a trephine (1½ to 2½ inches in diameter), inverted on the dura mater, and fixed in position by suture over it of the replaced scalp and pericranium.

The result in five of the cases has been complete correction of the deformity, and in the sixth only partial correction, due to the fact that the trephine available was not sufficiently large to include the entire area of depression.

At the end of one week, when the scalp sutures were removed, the inverted disk of bone was in all six cases found to be firmly united with the skull.

NEPHROPEXY.

GOELET (*Annals of Gynecology and Pediatry,* December, 1903) performs nephropexy in cases in which the kidney is prolapsed to the third degree, viz., when the kidney has descended below the border of the lowest rib in front, and the upper pole can be palpated when the patient is in the erect position, because it is an anomalous condition that should not exist and is not conducive to either health or comfort. This position of the kidney interferes with its circulation and function and with the flow of urine from the kidney, and by compression of the ovarian vein, which it overlaps, gives rise to pelvic disease.

The author exposes the kidney by a vertical incision along the outer border of the erector spinæ muscle, the muscles being separated in the direction of their

fibers; the fatty investment of the kidney is opened by a vertical incision near the spinal side of the wound, and the kidney is delivered through the incision upon the surface of the back. The fatty capsule is completely detached upon both the anterior and posterior surfaces, care being taken to detach the colon completely. The redundant fatty capsule is trimmed off on both sides. The fibrous capsule of the kidney is not disturbed. The sustaining sutures, two in number, are inserted only under the fibrous capsule, each having three insertions through and under the fibrous capsule, and the ends are brought out through all the structures of the back at the upper angle of the incision in the skin and are tied over a fold of gauze to avoid cutting through and loosening of the loop.

The suture material used is silkworm-gut, and the sutures are removed after three weeks. The parietal wound is closed by two layers of catgut sutures. A gauze drain, which is retained for forty-eight hours, is inserted around the lower pole of the kidney and brought out through the lower angle of the wound. The chief reasons for failure of nephropexy are postponement of the operation until the kidney is seriously disabled or an incurable pyelonephritis has developed, or until the health of the patient is permanently shattered; failure to completely detach the colon from the kidney, which may drag the kidney away from its anchorage or give rise to annoying pain; failure to immobilize the kidney until it can become permanently adherent by employing absorbable sutures or by attaching them insecurely to structures that yield to the constriction when it is tied; and fixing the kidney too low down, where it will be irritated by the pressure of corsets or clothing constricting the waist.

The author concludes with a record of 159 nephropexies by the method he describes on 126 patients, in 33 of whom both kidneys were fixed at the same time, without a death and without a single failure to secure permanent fixation. The ultimate results were cure of the symptoms and conditions depending upon the prolapse in all the cases he has been able to trace, for a period of from two to

LARYNGEAL COMPLICATIONS OF TYPHOID FEVER.

DUPUY (*New York Medical Journal and Philadelphia Medical Journal,* Dec. 26, 1903) reports a case of laryngeal complication during the course of typhoid fever, and has collected thirty-four other cases since the publication of Keen's statistics on 221 cases published prior to 1896.

Landgraf's estimate, based on all known statistics, places typhoid affections of the larynx at 11 per cent of all fatal complications, Griessenger at 26 per cent of all his fatal cases, and Luning estimates it at 3 per cent from clinical statistics and 17 per cent from post-mortem examinations.

Pathologically these affections may be grouped into three varieties: (1) Submucous laryngitis; (2) ulcerative laryngitis; and (3) laryngeal perichondritis. Practically, it is difficult to separate these forms, as one may overlap the other. Edema in this class of cases, being of inflammatory origin, exists only with either of the above forms.

Necrosis of the cartilages resulting from perichondritis is by far the most common form of laryngeal complication; the cricoid, and next to it the arytenoid, being most commonly involved.

Ulcerations appear next in frequency and may be either specific or non-specific in type. The true typhoid ulcers are excavated, with infiltrated areas surrounding them, and are especially productive of profound tissue changes. The non-specific ulcers, due to secondary infection by any of the pyococci, are superficial lesions, only slightly undermined, with no surrounding infiltration, and cause only slight damage to the parts. Specific typhoid ulcers show a marked predilection for the posterior laryngeal surfaces. The typhoid lesions occupy the adenoid areas normally distributed in the larynx and present true typhoid alterations, identical with those in the intestines.

Not a few cases have been reported in which the epiglottis was alone the seat of ulcerations. Laryngeal paralysis has been reported in twenty cases. It occurs principally during convalescence, the abductor muscles bearing the brunt of

typhoid affections of the larynx, the diagnosis is suggested readily by the overshadowing clinical feature of dyspnea, suffocation. The laryngeal invasion occurs in the most insidious manner, a milder grade of inflammation being followed suddenly by a stenosis, which means a struggle with death. The onset is usually late, about the third week, frequently in convalescence.

In the milder forms of inflammation, steam inhalations of menthol in compound tincture of benzoin, or spraying with menthol and liquid albolene, sucking pellets of ice, and the ice-pack over the neck, might prove efficient treatment, but when stenosis sets in tracheotomy offers in most cases the only hope. It is especially indicated in necrosis of the cartilages, in which the mortality without operative interference is 95 per cent. Analysis of twenty-six cases shows that in ten recoveries nine were operated upon. In the sixteen fatal cases only four were operated upon.

Intubation is hardly applicable. In perichondritis or necrosis, by interfering with the escape of pus and the necrotic tissue, it would prove worse than useless. In two cases it was practiced with success only in one instance—a case of complete abductor paralysis.

Luning's statistics show that of sixty cases recovering after typhoid perichondritis, eleven dispensed with the cannula in periods varying from seven months to six years; the other forty-nine wore the cannula permanently.

CENTRAL NEUROFIBROMATOSIS.

Neurofibromatosis consists in the formation of tumors (single or multiple) on one or more cranial nerves. According to FRAENKEL and HUNT (*New York Medical Record,* Dec. 26, 1903) the acoustic nerve is most frequently thus affected, and next in order the trigeminus. The fibromatous growths of the acoustic are of rounded form, varying in size from a cherry to a hen's egg, of fibrous consistency and distinctly encapsulated. The surface is nodular and irregular. Care in the examination will usually demonstrate their attachment to the atrophic nerve trunk. A small remnant of the nerve trunk, a few blood-vessels, and loose meningeal adhesions form the only connections of the tumor with its surroundings; hence it may be lifted with ease from its attachments, leaving a corresponding excavation in the structures composing the ponto-medullo-cerebellar space. Histologically the tumors are neurofibromata. Very commonly in the more advanced stages the growth assumes a sarcomatous nature.

The essential feature distinguishing these tumors from those originating within the substance of the brain-stem or cerebellum is the early appearance of symptoms referable to a single cranial nerve. These, because of the benign character and slow growth of the tumors, may precede for a considerable time any other focal or general symptom. Tinnitus aurium with progressive diminution of hearing and attacks of Ménière's syndrome (aural vertigo) will prove points of diagnostic importance in connection with the eighth nerve, and obstinate and atypical attacks of facial neuralgia in connection with the fifth nerve. Even in the advanced stages the affected nerves still preserve some of their functions.

With the increase in the size of the tumor, the neighboring parts, pons cerebellum medulla, and basal nerves show evidences of pressure; peduncular ataxia, tendency to fall or deviate to the same or the opposite side, cerebellar ataxia, nystagmus, irregularities in the size and reaction of the pupils, paralysis of associated movements of the eyeballs, dysarthria, dysphagia, homo- and contralateral and crossed paralyses of the extremities, paralysis of the facial or abducens of the peripheral type, motor disturbances of the palate or tongue, circulatory, respiratory and vasomotor phenomena, and attacks of Adam-Stokes's syndrome.

From the standpoint of differential diagnosis the chronological relation of the neural symptoms to the general symptoms, the relative intensity of the neural and the other central symptoms, are determining factors.

Owing to the proximity of vital centers these tumors share the fatal prognosis with other severe lesions in this locality.

Removal of the growth by operative

procedures offers the only hope of cure. Because of the loose attachment of these tumors to their surroundings it may be expected that in spite of the unfavorable location a perfected surgical technique will improve the prognosis.

MANUAL COMPRESSION OF THE HEART FOR CARDIAC FAILURE DURING CHLOROFORM ANESTHESIA.

SICK (*Centralblatt für Chirurgie,* No. 36, 1903) reports a case of sudden cardiac and respiratory failure in a fifteen-year-old boy, during an operation for tubercular peritonitis, under chloroform anesthesia. Except for an early momentary return of respiration and faint heart sounds, artificial respiration and massage over the heart were employed for a half-hour without any effect.

Artificial respiration was continued, and the heart was exposed fifteen minutes later by resecting a portion of the chest wall. Direct rhythmical compression of the heart for fifteen minutes was followed by one feeble cardiac contraction. Continued manual compression and the application of hot compresses to the anterior surface of the heart for another fifteen minutes resulted in strong, regular cardiac pulsations.

The patient recovered consciousness two hours after the completion of the operation, but finally died about twenty-four hours later.

THE INDICATIONS FOR THE LIGATION OF THE INTERNAL JUGULAR VEIN IN LATERAL SINUS THROMBOSIS.

The indication upon which OPPENHEIMER (*New York Medical News,* Dec. 26, 1903) feels justified in opening the jugular previous to operation upon the mastoid is the presence of septicemia or pyemia, as shown by the general condition of the patient, especially by the presence of a high temperature with rapid remissions, even to subnormal, with return of high temperature within a few hours. Metastases of the septic material clearly indicate immediate ligation of the jugular, followed by the usual operation upon the purulent collection at its source. Occipital edema, swelling of the eyelids of the corresponding side, and neuroretinitis indicate involvement of the jugular, while tenderness in the neck, with the presence of a cord-like sensation to the fingers of the surgeon, is undoubtedly the most reliable local symptom, and when present absolutely indicates ligating and removing the diseased vein before the mastoid is explored.

In those cases in which the sinus has been exposed, but not opened, the ligation of the jugular should precede further operative procedures in the direction of the sinus when the presence of a clot has been determined by the usual methods, and aspiration shows that the lower portion is beginning to disintegrate. This is indicated even more forcibly when septic symptoms of even a minor degree are present, although no emboli have entered the circulation.

Ligation of the jugular, after exposure of the sinus, is indicated also in the cases in which the movements of respiration are transmitted to the sinus; the dangers of embolism of air under these conditions, and the implied presence of a thrombus entering well into the torcular, warranting the immediate ligation of the vein in the neck before the sinus is opened. If, after exposing the sinus, the wall is seen to be ulcerated, and broken-down débris is contained in the vessel, it is advisable to stop operation in that direction and ligate the jugular before removing the diseased tissue.

If the jugular is tied high up and does not contain a thrombus, no further interference will be necessary, but if the thrombus has extended downward, or if phlebitis be present, a second ligature should be placed lower down and the vein removed.

From the local symptoms it is not always possible to ascertain that the jugular is infected, as there may be swelling of the neck and even tenderness along the jugular, which may be due to pathological changes in the lymph glands. Enlargement of the cervical lymph glands and infiltration of the soft tissues are, however, valuable signs indicative of phlebitis and thrombosis of the internal jugular, the condylar, and the deeper veins of the neck. This infiltration often undergoes purulent inflammation.

Ligation should be performed also in the cases in which a large thrombus fills

the sinus and extends down into the vein, though neither septic nor disintegrating changes be present.

Ligation is perfectly justifiable even if the presence of a thrombus in the upper portion of the jugular is not recognized, whenever it is impossible to produce a free flow of blood after the sinus has been evacuated as thoroughly as possible.

VARICOCELE—OPERATIVE TREATMENT.

In mild cases of varicocele, not causing pain nor other disturbances, a suspensory is all that is needed, but when symptoms demand a more active treatment VISCONTINI (quoted in the *Journal of the American Medical Association,* Nov. 14, 1903) believes that the Parona operation will give results superior to all others. The testicle is detached from the tunica vaginalis, the enlarged veins are buried in the turned-over vaginalis, and the latter is fastened at the outlet of the inguinal canal. The patient can be dismissed in fifteen days. This method has been employed in forty-one cases, and the results have been perfectly satisfactory in all, with no further necessity for wearing a suspensory.

RUPTURE OF THE QUADRICEPS EXTENSOR TENDON.

In 1896 Walker added 141 cases to the 124 cases of rupture of the quadriceps extensor tendon tabulated by Maydl. To these cases NORRIS (*University of Pennsylvania Medical Bulletin,* December, 1903) is able to add 38 more, making a total of 303 cases.

Walker gives a total of 41 cases which were operated upon, of which 35 were complete cures; in the remaining six the result was not stated. Of 27 cases collected by the writer in which the tendon was sutured there were 27 complete cures. The average length of time required in operative cases for the recovery of the full use of the leg is about eight or nine weeks, while in those not operated upon the recovery has been much slower. There have been no fatalities reported following operation.

The usual cause of the rupture is a sudden strong contraction of the quadriceps muscle while the leg is slightly flexed. The rupture is commonly at or near the patella either above or below. A tear at the patellar attachment opens the capsule of the knee-joint. Following the injury there is loss of extension power, rapid effusion into the joint, preternatural mobility of the patella, and a depression at the point of rupture, varying in extent with the amount of separation of the ends of the tendon. The injury may be confounded with fracture of the patella, or a severe contusion of the knee-joint, but after the subsidence of the acute inflammatory effusion its nature may be readily diagnosed.

Non-operative treatment is practically the same as for fracture of the patella, and may be employed in those cases where the rupture is incomplete. Operative treatment consists of exposing the divided ends of the tendon and uniting them with some suitable suture, and following this by fixation of the knee-joint, with the leg extended. Massage and passive motion should be begun about two or three weeks after the operation. Operative treatment affords the best prognosis.

DYSMENORRHEA AND STERILITY DUE TO STENOSIS OF THE CERVIX TREATED BY INCISION.

When the symptoms of dysmenorrhea and sterility exist separately they may be due to many causes, but when associated FENWICK (*Medical Press,* Dec. 23, 1903) believes they result most frequently from a congenital or a traumatic constriction of the canal of the cervix uteri.

However acquired, there is thereby produced a definite mechanical obstacle to the egress of menstrual blood and the ingress of seminal fluid. All gynecologists have seen examples of traumatic stenosis, where after a difficult labor a woman has, perhaps for the first time, commenced to have severe menstrual pain and has not conceived again. Examination reveals a hard cervix with a small, contracted orifice, while inspection shows dense cicatricial tissue where labor has evidently lacerated the cervical lips.

The type of congenital stenosis is found in the condition known as "conical cervix." The cervix is abnormally long, often measuring an inch to an inch and a half, or even more. It tapers down-

ward, and the external orifice is almost invariably so small that it has been designated the "pinhole os." It is often impossible to pass an ordinary uterine sound through the opening, and when a surgical probe is introduced it is found to be tightly gripped along the whole length of the cervical canal. In these cases the dysmenorrhea usually begins one or two hours before the menstrual flow, and becomes gradually worse until the flow ceases.

Operation affords the best result in the treatment of these cases. The patient being anesthetized and in the lithotomy position, the vagina is well douched and cleansed, the posterior wall of the vagina is retracted by a speculum, a double hook is passed through the anterior lip of the os, and the cervix is drawn down. The cervical canal is dilated by graduated metal sounds up to No. 16, one blade of the scissors is passed half-way up the cervical canal, and an incision is made to that extent on each side. The posterior lip falls back; the anterior lip is drawn forward with the hook.

A small needle threaded with strong catgut is passed through the left side of the anterior lip close to the upper angle of the incision, and then across and through the corresponding point on the right side. A similar stitch is inserted about midway between the former and the tip of the cervix. The anterior lip is sponged clean of blood, and first the upper and then the lower stitch is tied. This results in the edges of the anterior lip being folded together, the raw surface being closed completely, whilst the posterior lip is left flat and open. Two or three wool plugs are applied tightly against the cervix to check hemorrhage. The plugs are removed in about sixteen hours, when it is found that the posterior lip is glazed over with lymph and quite dry. In about a week it is covered with mucous membrane extending up to the angle of the wound. Meanwhile the catgut in the anterior portion of the lip is softening, and as a general rule the wound gapes open, while at the same time it is becoming covered with mucous membrane. At the end of ten days the catgut stitches are removed and the anterior lip is allowed to flatten out, there not being any danger of the cervical lips reuniting. On passing the finger, the cervix is found widely patent, and as a rule there is no discharge. At the end of a fortnight the patient is able to resume her home life.

The author has performed this operation on eighty-seven patients. In every case the first period after the operation was practically free from pain, and in twenty-eight cases the relief has been permanent for at least two years. In thirty-three cases an average of eleven months has elapsed since operation, and there has been no recurrence of symptoms. In ten of the cases the records extend over a period of three or four months, but in these the relief so far has been permanent. In eight cases varying from four months to two years some amount of menstrual pain had returned, but in each case was much less severe. In the remaining eight cases the result after the first month is unknown.

Of the eighty-seven cases, forty-one were sterile, having been married for periods varying from two to eleven years. In twenty-four of these cases, in which the records are complete, eighteen became pregnant.

CHRONIC SPHENOIDAL SINUSITIS.

RODGERS (*Boston Medical and Surgical Journal*, December, 1903) found on examining 600 patients that twenty-nine were cases of accessory sinus disease, being nearly five per cent of all who came to the throat department for treatment. Chiari and Lichtewitz reported an average of only two per cent.

Of these twenty-nine cases the antrum of Highmore was affected four times; the frontal once; a mixed frontal and ethmoidal twice; the anterior ethmoidal three times; the posterior ethmoidal two times; the sphenoidal sixteen times; and a mixed posterior ethmoidal and sphenoidal once. This places empyema of the sphenoid at the head of the list, which does not agree with the majority of clinical observations in placing the maxillary sinus as the place most commonly diseased. In most cases it is impossible to see the opening into the cavity, owing to the obstruction of the vision by the middle turbinate.

In making a diagnosis of sphenoidal disease the author relies mainly on the probe. The probe must be passed in the

direct continuation of the line from the anterior nasal spine to the middle part of the middle turbinate. It must not go anterior to this line. The distance from the anterior nasal spine to the anterior sphenoidal wall is 7½ centimeters and never more. If the probe goes a greater distance, it is in either the sphenoidal sinus, brain cavity, or nasal pharynx; if it goes over the turbinate into the middle part in the direct line mentioned, it is certainly in the sphenoidal cavity. The probe must be bent with a slight horizontal concavity in order to pass around the convexity of the middle turbinate; the tip should be bent very slightly downward, as it is easier to enter the cavity and there is less danger of injuring the posterior walls. Having entered the cavity and feeling roughened bone, or spongy granulation tissue, one is warranted in making a diagnosis of sphenoidal disease, and justified in opening the cavity for the relief of many obscure symptoms, such as somnolence, numbness of the lower lip, nervousness, cough, deafness, chills, vertigo, diffuse pain in the head, pain in the back of the head, deep-seated pain back of the eyes, or another symptom not so obscure, namely postnasal discharge, which is too often treated as an ordinary catarrh by postnasal applications.

The sphenoidal cavity is opened, after thoroughly cocainizing the nose, by removing a piece of the middle turbinate anteriorly to the wall with a Knight cutting forceps. With the same forceps the tip of the turbinate is grasped and bent toward the outer wall, then by a quick twist in the opposite direction it is fractured along its attachment, the forceps still grasping the bone as it is removed, and usually the whole turbinate comes away, leaving a free and easy approach to the sphenoidal opening. Hemorrhage is usually brisk at this time, but it is not of long duration, and further bleeding is exceptional. The patient is instructed to use a spray of 1:1000 solution of adrenalin twice a day for ten days, after which the sinus is opened. This is done under cocaine with forceps constructed on the principle of Grünewald's cutting forceps. After the forceps has entered the nose its jaws are slightly opened, and while paying attention to the upper jaw only the instrument is passed into the sphenoidal opening in the same manner as the probe. The jaws are then brought together with firm pressure; biting out the anterior wall to establish free drainage. Usually this is all that is necessary to obtain complete relief. In two cases only has the author found it necessary to curette and syringe out the cavity.

This method has given complete relief in the eleven cases reported by the author, and the more extensive operation, by way of the antrum of Highmore, as recommended first by Jansen and later by Luc and Furet, has not been necessary in a single case.

TREATMENT OF ANGIOMATA.

FRATTINI (quoted in the *New York Medical Journal and Philadelphia Medical Journal,* Nov. 21, 1903) has employed the bloodless method of Monteggia in the treatment of thirty cases of angioma. This consists of the application of a paint containing 4 grammes of corrosive sublimate to 30 grammes of collodion. Several layers of the collodion are painted on the angioma, one over the other, and the whole is covered with an antiseptic dressing. The painting is repeated every three days. On separation of the eschar there is sometimes a slight erosion. The method is not applicable to the angiomata of mucous membranes, as the caustic may produce an ulcer.

Regions covered with hair must be shaved before making the application. The results have been most satisfactory in all the cases in which the author employed this treatment.

CARCINOMA OF THE STOMACH—SURGICAL TREATMENT.

MURPHY (*Annals of Surgery,* December, 1903) states that exploratory gastrotomy combined with direct inspection of the gastric mucosa is the ideal procedure for the early diagnosis of suspected gastric carcinoma. By this procedure many lives will be saved, much suffering avoided, and the radical operation for gastric carcinoma will give entirely different results in the immediate mortality and the permanency of the cure. Fortunately for the surgeon, the area

most frequently attacked by carcinoma is the one most easily exposed for ocular examination in exploratory gastrotomy.

In papillary cancer with a large base the prognosis is relatively good, as it is least malignant. Since the radical operation takes some time Schleich's anesthesia is recommended, which even debilitated patients can stand. Mikulicz's method of reuniting the stomach and intestine by closing the duodenum with a purse-string suture and establishing anastomosis between the inferior angle of the gastric wound and the jejunum simplifies the operation, takes less time, and is more rational, since it changes the position of the stomach the least.

A great improvement on the permanent results can be obtained by recognizing and taking advantage of the "area of immunity from cancer" demonstrated by Mayo. With the exception of 17.4 per cent of the cases (viz., those occurring in the cardia, 8 per cent; in the posterior wall, 4.7 per cent; involving the whole stomach, 4.7 per cent), cancer involves the pyloric area. This "immune area" can be preserved in gastrectomy, and furthermore all but that portion can be removed safely, permitting the surgeon to go wide of the primary focus, thus diminishing the liability of recurrence *in loco* or in the adjacent glands.

The surgeon has a still greater field which up to the present time has been grossly neglected in the prophylactic treatment of carcinoma of the stomach. Mikulicz estimated that on an average 4 to 5 per cent of the race suffer from gastric ulcer. Friedler found in 2200 postmortems that in 20 per cent of the women and 1.5 per cent of the men fresh or cicatrized gastric ulcer was present. These ulcers and scars were frequently the seat of carcinomatous degeneration; their proper treatment is therefore an important factor in prophylaxis of carcinoma.

Carcinoma is induced or invoked by mild and repeated irritations of normal or cicatricial epithelial surfaces and by those conditions which prevent the normal emptying of the stomach, such as pyloric obstruction. The prophylactic treatment of carcinoma therefore involves the early relief and removal of all the conditions which tend to retention and its sequential gastric irritation. The radical removal of the pylorus, even for non-malignant disease, cannot be considered except for complete occlusions, as it involves a mortality not to be overlooked. The relief of the obstructive conditions can be secured however by the safe and very satisfactory operation of gastro-enterostomy.

ADRENALIN IN THE TREATMENT OF INTERNAL HEMORRHAGE.

SIMONOVITCH (quoted in the *Journal of the American Medical Association*, Jan. 23, 1904) found that dogs and rabbits tolerated large doses of adrenalin by mouth without general effects. Human subjects also took five times the usual accepted largest therapeutic dose without showing any general effects, not even a single subjective symptom. No general effects were observed in the animals, even after the intestine had been injured intentionally. Absorption of adrenalin into the blood through the mucous membrane of the alimentary canal, therefore, must be a very slow process. It can be ingested with impunity, and hence will be found very valuable in cases of internal hemorrhage. Its value as an internal hemostatic will be enhanced by giving it in small repeated doses rather than in a single large dose.

DYSTOCIA CAUSED BY CONGENITAL CYSTIC KIDNEYS IN THE NEW-BORN.

Congenital cystic degeneration of the kidney is especially rare as a cause of dystocia. In a few of the cases on record the enormous distention of the kidneys necessitated puncture of the abdominal wall and practical evisceration before delivery could be effected.

FUSSELL speaks of eleven cases in which the kidney obstruction was so great as to render mutilation imperative. In one case the abdomen measured 18 inches at the umbilicus; both kidneys were enormously enlarged, the left 6 x 5 inches, the right 5 x 4 inches; both in original form, nodulated, and the seat of cystic degeneration; the mass composed of a multitude of small cysts, varying in size from a pea to a pin-point. Frequently associated with congenital cystic kidney are

defects of development, hydrocephalus, cleft-palate, harelip, spina bifida, and defects of the genito-urinary organs.

MORSE (*Journal of the American Medical Association,* Dec. 19, 1903) thinks the diagnosis of congenital cystic kidney cannot be made early enough to be of any practical value to the obstetrician. Its occasional occurrence, however, should not be overlooked in those cases in which there is prolonged and unnatural resistance to the birth of the body. Careful examination demonstrating the distended condition, and all other efforts failing to effect delivery, the physician is justified in puncturing the abdominal wall, passing his fingers through the opening, and by a removal of the enlarged kidneys reducing the size of the child sufficiently to permit of its passage through the birth canal.

It not infrequently happens that cases of cystic kidney fail to go to term. Should such a pregnancy extend to the full period of gestation, the child is still-born or expires a few minutes after birth. The causes of death are numerous; but asphyxia, from compression of the lungs and diaphragm, is the direct cause in a great majority of cases.

VITILIGO TREATED WITH FINSEN LIGHT.

MONTGOMERY (*Journal of Cutaneous Diseases,* January, 1904) reports a case of vitiligo in a full-blooded Mexican nineteen years of age. The affection began at five or six years of age and steadily increased until patches were distributed over the entire cutaneous surface. Local applications and internal medications were employed for three months without benefit.

Only those spots that were exposed to view on the face and hands were treated by means of the Finsen light. There were nine sittings in all, and about five applications of the light for ten minutes to each spot treated. The instrument used was the London Hospital lamp. The skin was well reddened as in a sunburn. Some of the more recent spots about the mouth showed immediate improvement on the subsidence of the inflammation. Some of the older spots were much slower, both in reaction and in improvement. Treatment was interrupted long before the restitution of pigment in most of the spots. Four months later there was not a sign of a patch on the face, and those on the hands had nearly disappeared.

THE TREATMENT OF ECLAMPSIA.

SMITH (*Annals of Gynecology and Pediatry,* January, 1904) believes that eclampsia is due to an anemia of the corpora striata or such other parts of the brain centers as control muscular movements. This anemia is brought about by spasm of the arterioles which carry the blood to the part, but the spasm is not limited to these arterioles alone.

Treatment should be directed to relaxing the vasomotor spasm, thereby permitting the blood to rush into the brain and kidneys, which in turn is followed by a return of consciousness, and by free elimination of the toxin which produces spasm. The treatment should consist of a hypodermic of ½ to ¾ grain of morphine, followed in five minutes by a hypodermic of tincture of veratum viride, repeated every ten minutes until the convulsions stop, or the pulse goes down to 40. This should be followed by an enema of a quart of salt solution, which will be absorbed quickly by the rectum, and within half an hour, as the spasm in the arterioles of the kidneys relaxes, there will be a copious secretion of poison-laden urine. Chloroform, chloral, and *accouchement forcé* will not be needed.

Within a half-hour the woman falls into a deep slumber. Normal labor, with the expulsion, probably, of a dead fetus, will occur within one to seven days.

The author has employed this treatment in three cases, and one of his pupils, de Cotret, in forty cases, without a death.

CARCINOMA OF THE RECTUM.

In carcinoma of the rectum TUTTLE (*New York State Journal of Medicine,* January, 1904) states that the seriousness of the disease cannot be overestimated. Some few cases survive, with or without colostomy, for twelve or eighteen months, but nine months after the disease has become well established is a long average of life for these unfortunate patients. Without extirpation of the can-

cer all die within one or two years, and during the last six months their misery is so great that death is usually anticipated with relief.

In the prolongation of life all reliable statistics show that the average is from six months to three years greater after extirpation than after colostomy. In the relief of pain extirpation is perfect, whereas all other methods are only partial. In restoration to strength and usefulness it excels all other methods because it removes the source of autointoxication, the cause of the diarrhea, and the reflex disturbances of the digestion.

In its immediate mortality alone does extirpation compare unfavorably with other methods. The author has operated on 43 cases with an immediate mortality within two months in 7 cases, death within one year in 3 cases, death within two years in 2 cases, and in 1 case, in which the operation was incomplete, owing to collapse, the patient is still living, but had a recurrence within four months. Of the 29 cases remaining, 22 are known to be alive, and 16 of these have survived the operation for periods varying in length from two to eleven years.

Among the chief causes of death is late or improper diagnosis. Four of the fatal results occurred in cases in which the disease had been recognized too late for any hopeful interference. Every case of progressive constipation, and every case of diarrhea lasting over two weeks, or recurring from time to time, ought to have a careful rectal or sigmoidal examination. Next to late diagnoses, infection is the chief cause of death.

HYOSCINE HYDROBROMATE AS A PRELIMINARY TO ETHER ANESTHESIA.

ROBERTSON (quoted in the *Journal of the American Medical Association,* Jan. 23, 1904) has employed hyoscine hydrobromate in connection with ether anesthesia in fifty-seven cases of abdominal and other operations in adult women with excellent results. He usually gives .01 of hyoscine hydrobromate hypodermically, half an hour before the beginning of ether inhalation, causing dryness of the mouth, thirst, and dilatation of the pupils, at which time ether is administered. The administration causes but little secretion of mucus. The patients are less anxious, there is a tendency to sleep after the anesthesia, which as a rule is more rapid than when the ether alone is given, and in no case was there severe or prolonged after-vomiting. In fifty-five cases the patients were absolutely quiet during administration. In none of the cases were there any respiratory disturbances following ether.

The hyoscine hydrobromate acts by counteracting the overstimulating effects of ether, decreasing the amount of mucus. If it proves to be free from danger, it will be a valuable aid in the administration of ether.

THE INTESTINAL PERFORATION IN TYPHOID FEVER.

HARTE and ASHHURST (*Annals of Surgery,* January, 1904) have examined the records of 362 patients who, during the course of typhoid, submitted to laparotomy for intestinal perforation, or for peritonitis without actual perforation.

In a total of 8881 cases of typhoid fever collected from various sources, perforation occurred in 225, giving a percentage of 2.54. The white race is more disposed to perforation than is the negro race; the male sex is more liable to suffer perforation than the female, in the ratio of about four to one. Of 279 cases in which the age is known, over 12 per cent occurred in patients under fifteen years of age; over 54 per cent between fifteen and thirty years; and only 33.6 per cent in those over 30 years of age. Intestinal parasites may be a predisposing cause, or even in rare instances an exciting cause. Out of 932 cases of typhoid perforation reported by Armstrong, two had intestinal worms.

Of 286 cases is known the stage at which the perforation occurred; only six, or about 2 per cent, occurred in the first week; the second or third week witnessed 102 perforations, or 56.6 per cent of the whole number; while after the end of the third week only 41.2 per cent occurred. Contrary to the teaching of many writers, the authors believe that perforation in the majority of instances is a lesion of the severer forms of the disease. Thrombosis beneath the serous

coat of the bowels and tympanites act as predisposing causes of perforation.

The exciting causes are chiefly those which act mechanically. Among these, indiscretions of diet probably hold first place; then purges, injudiciously administered, large or too forcible enemata, a sudden motion in the bed, straining on the bedpan, and the almost unavoidable contraction of the abdominal muscles produced by the physical shock of the cold bath, have been held responsible for the immediate onset of the symptoms of perforation.

As to the form of the perforations, the larger circular lesions generally are due to sloughing, the smaller cribriform to ulceration, and the oblong, slit-like perforations have been thought to be due to traumatism.

The perforation usually is situated on the part of the bowel diametrically opposite to the mesenteric attachment; occasionally, however, an ulcer perforates between the layers of the mesentery, and a retroperitoneal abscess is formed.

In 271 cases in which the number of perforations is mentioned, a single perforation occurred in 236, while in the remaining 35 it was multiple. In 72 cases the perforation was less than one-eighth of an inch in diameter (practically pin-headed in size), in 73 cases it was under one-half inch, and in only 23 cases was it over a half-inch in diameter, while in the remaining cases the size of the perforation was not mentioned.

The site of the perforation is given in 190 cases; in 140, or over 73 per cent, the lesion was found within 12 inches of the cæcum; and in only 4 cases, or 2.1 per cent, it was over three feet distant from the ileocæcal valve. In 7 cases only was the colon perforated, in 5 the descending colon, in one each the sigmoid and the transverse colon. Meckel's diverticulum was perforated three times, and the appendix eight times. There were 12 patients in whom a subsequent perforation occurred; these all died. In 3 cases, while one or more perforations were found at operation, others in the same patient were not detected, and all 3 cases proved fatal.

In the cases in which the typhoid bacillus alone is the infecting cause the usual lesions are a low grade peritonitis, lemon-colored exudation, few adhesions, and not much lymph. Where the streptococci or the staphylococci abound the lymph is more abundant, and adhesions are the rule if the peritonitis has lasted more than a few days. The prognosis is much more grave in the streptococcic infection than in typhoid.

In a typical case the symptoms are well marked and easily distinguished, but unfortunately such a case is the exception; moreover, a person may present all the clinical evidences of a perforation, and yet no evidence of perforation will be found at operation; and on the other hand, the patient may die without abdominal symptoms of importance, and at autopsy a perforation may be found.

Pain alone is by no means pathognomonic, but it is the most valuable subjective symptom. The pain experienced usually is a stabbing sensation, mostly in the right lower quadrant of the abdomen, though for it to be felt in the epigastric or umbilical regions is not infrequent, or it may be located in the bladder or at the end of the penis. There may be a let-up of the pain or it may continue.

The patients at times will scream out and roll around the bed in agony, doubling themselves up with abdominal pain, which may persist for two or three hours with undiminished intensity. A very apathetic patient may not complain of pain, or there may be only a gradual increase of discomfort in the abdomen, with no sudden onset of pain. This is more usual where the abdomen is already tympanitic and where peristalsis has been very slight for some time.

Vomiting alone cannot be considered at all indicative of perforation, but where it occurs the first time, and especially where it either precedes or follows pain, it should not be passed by lightly; if it is at all violent it very likely will cause perforation, and in many instances follow it.

At the same time as the pain, or soon after, sweating may occur, or it may even precede the pain. With the sweating, or when sweating is absent, occurs a fall in temperature; a drop of 4° to 6° is not infrequent. A secondary rise may occur with the onset of peritonitis.

Frequently a change in the solubility of the bowels follows perforation; were they loose before they become confined,

or were they costive previously they become loose. Delirium may have preceded or may develop only with the peritonitis.

In making a diagnosis of perforation more reliance can be placed upon the physical signs than upon the subjective symptoms, and of the former the most valuable is rigidity of the abdominal walls. Muscular rigidity is most frequently observed in the right rectus muscle, less frequently in the right oblique muscles, sometimes in the left rectus, and occasionally spreading with the inflammation all over the abdomen.

In most cases of typhoid fever the pulse is low in relation to the height of the fever, rarely averaging more than 100 beats per minute; but after perforation the rate rises to 120 or 140 in a very short time, often within fifteen or twenty minutes, and the respirations may be accelerated as well. The facial expression is important. Almost from the very moment of perforation there is a distinct change of expression difficult to describe, which consists chiefly in a general weakening of the expression.

Tenderness, while often present throughout the disease, is without exception increased by perforation. When present it is usually found in the right lower quadrant near the site of the lesion. Dulness on percussion is a very uncertain sign, but if well marked movable dulness in the flanks develops within the course of an hour, it presents very excellent evidence of a solution of continuity in the intestinal walls.

The absence of free peritoneal fluid on no account should be taken as proof that perforation or peritonitis does not exist. Edema of the abdominal walls is occasionally observed, but has no specific significance.

The condition of the blood is one of the most vexed questions that arise in connection with perforation. The whole question is undecided; the accurate observations being still too few to draw any definite conclusions.

The differential diagnosis has to be made most often from hemorrhage. While the collapse may be the same in either case, the hemorrhage as a rule is unattended by pain, and there is no rigidity present. In hemorrhage the blood is generally passed by the bowel in the course of an hour or so at the outside; and in most cases where confusion is liable to arise the occurrence of previous hemorrhages in the same patient would incline one to pause before undertaking an exploratory laparotomy. Hemorrhage may occur in conjunction with perforation, and in any cases where reaction from collapse due to obscure abdominal lesions does not occur promptly, the authors are in favor of operative treatment, since in one of their cases the bleeding point was found by laparotomy and ligated. The diagnosis from appendicitis or from peritonitis without perforation is not essential, as operation is indicated in any event. Affections of the gall-bladder occurring during typhoid fever are not uncommon. They present pain in the right hypochondriac region; vomiting is persistent; no fall of temperature occurs; there is little shock, and the physical signs of tenderness, rigidity, dulness, palpable mass, aid in localizing the disease. Perforation of gastric ulcers during typhoid fever is recognized chiefly by localizing signs. Suppurating mesenteric glands or splenic infarcts may give rise to peritonitis in this disease, but here the symptoms are those of peritonitis pure and simple.

Of those patients who died after the operation, in very few indeed did the operation hasten death. Only five of the patients operated upon are known to have died before the conclusion of the operation. Of those who died, 21 lived two days, 23 lived three days, 21 five days, 7 nearly a week, while 11 lived over a week, 3 over two weeks, and 4 over a month. Of the whole number 26 per cent finally left the surgeons' care well.

The most favorable cases have been those in girls from ten to fifteen years of age; the perforation occurring in the first week of the disease when the constitution is still strong, or in convalescence; the operation having been performed the third hour after perforation; the single perforation being pin-head in size; within a few inches of the cæcum, or in the appendix; or where no fæcal extravasations had occurred, nor adhesions were present. Such would be the ideal case, and the mortality should be less than 50 per cent.

The treatment of all patients suffering from intestinal perforation in typhoid

fever should be by laparotomy, and suturing of the perforation. To trust to medical treatment alone is nothing short of folly. The average time consumed in operation by skilful operators is about fifteen to twenty minutes. General anesthesia with ether is preferable to any form of local anesthesia. The cleansing of the abdomen, while thorough, should not be vigorous, for fear of diffusing any extravasated fecal matter and of producing further perforations. Speed in operation is imperative. The best incision is that made through the outer half of the right rectus muscle. It is straight, small, direct, and economical of time, and is a route that gives direct access to the landmark of the cæcum and to that part of the small gut most often affected, and affords sufficient room for exploring nearly the whole abdomen. At the same time it can be extended in either direction at need, and offers excellent drainage facilities.

When the perineal cavity is opened the cæcum should be located, and the vermiform appendage should be inspected and removed if necessary. The infected area should be walled off with large gauze pads. The ileum is next drawn into the wound and carefully examined. It is a great advantage to have two pairs of eyes examining it at the same time as it passes through the surgeon's hands, one watching the upper and one the lower surface. Chilling of the eventrated bowels should be prevented by covering them with hot towels, and douching them with hot saline solution. When the perforations are found, all other coils of intestine should be replaced. If the bowel is much distended with gas or fecal matter it should be allowed to discharge through the perforation, after which the perforation should be sutured. Excision of the ulcer is not only perfectly useless, but harmful as well, since it consumes time and may open a blood-vessel. Black silk is the best suture material, using it threaded on a small, round, straight needle. The perforation should be closed by superimposed rows of mattress sutures, parallel to the long axis of the gut. At times it may be more expedient to use a purse-string suture, the application of which takes less time. It is round and small and holds well if the surrounding bowel is in fairly good condition. In those cases in which the diseased area extends so far transversely that suture is impossible, the grafting of a piece of omentum over the defect, enterectomy with end-to-end anastomosis, and the making of a false anus must be considered. The making of a false anus consumes less time and is easier of accomplishment to one unaccustomed to abdominal surgery. A fecal fistula, however, is sure to prolong the healing of the wound, and in a fair proportion of cases will require a subsequent operation for its closure. Moreover, it is difficult to drain the peritoneal cavity effectually through the same wound at which the bowels are emptying themselves, and there is constant danger of infecting the peritoneum by the backward leakage, so that on the whole, where closure of the perforation by suture or omental grafting is impossible, excision of the diseased portion of the gut with circular enterorrhaphy is to be preferred. Omental grafting is applicable to threatening perforation as well as to actual perforation.

Every perforation having been found and treated as seems indicated, the sutured gut should be fixed beneath the parietal wound, and if there has been fecal extravasation, or if there has been general peritonitis, the abdominal cavity should be thoroughly irrigated with several gallons of hot salt solution. Drainage is necessary in nearly every case. In the simplest cases a wick of gauze may be introduced and the abdominal wound closed through nearly its entire length. If, however, there be any suspicion of pelvic inflammation, a good-sized piece of gauze should be carried down to the pelvic floor. The dressing should be copious. The patient is to be returned speedily to a well warmed bed, the foot of which may be raised 12 or 14 inches to facilitate the drainage of fluid from the pelvis. Hypodermoclysis or intravenous injection of normal salt solution may be begun now, or may be continued if not completed as soon as the operation. When the patient comes out of ether, a high enema of a pint of hot normal salt solution should be given every two or three hours. Food by mouth should be avoided as long as possible; peptonized milk or beef juice can be added to the saline enemata. Hypo-

dermoclysis and enemata of normal salt solution are likewise valuable adjuvants in combating the typhoid toxemia. After twenty-four hours a teaspoonful of hot water may be given by the mouth every ten or fifteen minutes. In feeding by the mouth it must be remembered that the patient has both typhoid fever and a sutured area in his intestine, and he should be fed accordingly.

The gauze drains can be removed between the fourth and seventh day, to be replaced by fresh wicks. Fecal fistula may be regarded as of good prognostic import as far as life is concerned; however, it delays ultimate recovery. If a second perforation occur, or if intestinal obstruction from bands of adhesions develops, a second laparotomy must be performed. Of eight cases where more than one operation was performed, three recovered.

Exploratory laparotomy in cases where the diagnosis is uncertain is practically never the cause of death, and is recommended in all doubtful cases especially, as in some instances the irrigation of the peritoneal cavity has actually seemed to exert a beneficial influence on the course of the disease.

A SIMPLE METHOD OF EXAMINING THE STOOLS FOR GALL-STONES OR OTHER SOLID BODIES.

LILIENTHAL (*New York Medical Record,* Jan. 9, 1904) thus describes a simple method which takes away many of the disagreeable features of examining the stools for solid bodies. Take a loop of telegraph wire, a few inches greater in diameter than the entire top of the closet seat, and fasten to this a bag of at least two thicknesses of dressing gauze or mosquito netting. The bag may be sewn to the wire or simply held by safety-pins, but it should be made very full, so that when the loop is placed the wire shall be well below the level of the seat and the bag shall hang down well into the water at the bottom of the bowl.

If the patient is not confined to bed he defecates into the closet, and then simply opens the water valve long enough to wash away all but solid bodies. If the patient is confined to bed the stool can be carried to the closet. In rural districts the same procedure may be followed, except that the water must be carried to the privy and poured through by hand.

The principal advantage of this method, especially in city practice, is that the patient himself may be trusted to make an absolutely accurate examination. The author has been able to confirm a diagnosis of cholelithiasis from tiny faceted stones considerably smaller than a mustard seed, which had been discovered in the stools by the patient.

AMPUTATION OF THE HIP-JOINT FOR SARCOMA.

During the past fourteen years COLEY (*American Medicine,* Jan. 9, 1904) has observed seventeen cases of sarcoma of the femur and twenty-two cases of sarcoma of the thigh. The majority of these cases were hopelessly inoperable when they came under observation, but in eleven cases high amputation was performed.

In seven instances the amputation was made through the hip-joint, and in four cases below the trochanter. Of the seven cases of hip-joint amputation the sarcoma originated in the bone or periosteum in five cases, and in the muscles or fascia in two cases. The ages of the patients ranged from six to sixty years. The question of curability of sarcoma of the femur by operation is one that is still unsettled. Bullin states that of sixty-eight cases in which treatment consisted of hip-joint amputation, or high amputation, only one patient was known to live more than three years.

The author believes that sarcoma in this locality presents one of the most malignant forms of tumor with which the surgeon has to deal. Of his seven patients with sarcoma of the femur treated by amputation, two died within a year, two within two years, one was not traced, and the last, a recent case, is the only one in which the patient is known to be alive. Of the four patients with sarcoma treated by amputation just above the trochanter, one with sarcoma of the femur died four months later with pulmonary metastasis; the second, with sarcoma of the femur, had a local recurrence at the end of fifteen months, then disarticulation was performed, and the

patient lived two months longer, when he died of generalization of the disease. The third case was a multiple melanotic sarcoma of the skin of the thigh, and the patient died four months later of generalization and internal metastasis. The fourth case was a recurrent sarcoma of the thigh, primary in the tarsus, and there was a local return in the gluteal region, which disappeared under the use of mixed toxins. The patient is living and well at present, six years after amputation.

The author has been able to collect only six cases of sarcoma of the femur which have been cured by high amputation, and after discussing various methods of treatment he presents the following conclusions: (1) Sarcoma of the femur is a malady so dangerous to life, and so prone to early metastasis, that only the most radical operation should be performed, and that at the earliest possible moment. (2) Hip-joint amputation is to be preferred to resection or to amputation through the shaft. (3) Recurrence being the almost invariable rule, after all methods of operation a thorough course of mixed toxin treatment after operation as a prophylactic offers the best hope of permanent cure.

PROLAPSE OF THE LACRIMAL GLAND.

Roy (*American Journal of the Medical Sciences,* January, 1904) reports a case of spontaneous prolapse of both lacrimal glands in a colored woman aged twenty-seven years. Several cases of traumatic prolapse have been reported, as also one or two cases of spontaneous prolapse of one lacrimal gland, but nowhere could the author find records of a case where both lacrimal glands became spontaneously detached. The diagnosis of dislocated lacrimal glands is easy, especially so when there is an incised wound permitting easy inspection in addition to palpation. In all of the cases reported, except one, the deformity was noted externally rather than internally beneath the upper lid; with the exception of deformity due to swelling and the possible limitation of the raising of the lid, spontaneous cases usually cause no inconvenience to the patient. In none of the cases recorded has the lacrimal function of the gland been impaired. In one case, in which the greater portion of the gland was removed, there was no difference in the moisture of the two eyes. In those cases in which a contused or incised wound complicates the condition, operative interference must always be considered. In those cases in which there is no wound, or in the so-called spontaneous dislocations, the question of operation must be decided by the character of the individual case. Mechanical contraction is difficult of application.

If the deformity is not marked, and there are no uncomfortable symptoms, no treatment whatever is necessary. If there is ptosis from the presence of the gland, or if the latter should be painful and of great discomfort to the patient, fixation is to be attempted, and if that fails there is no reason why the gland should not be removed.

URETHROTOMY BY THE COMBINED USE OF AN ANTERIOR AND POSTERIOR SOUND.

In addition to the guide commonly passed down to the anterior face of an impermeable stricture, in performing external perineal urethrotomy, PENN (*Journal of the American Medical Association,* Jan. 9, 1904) recommends the use of a sound passed through the bladder down to the posterior surface of the stricture. A curved trocar and cannula is thrust into the distended bladder just above the pubes. The trocar is withdrawn and the urine allowed to escape. The bladder is then refilled with salt solution, and a long silver sound, curved to fit the cannula, is introduced into the bladder. Traction is made on the penis to obliterate the obstructing folds of the urethra, when the sound can be dropped readily into the dilated proximal urethra. The usual dilatation of the urethra posterior to the stricture in these cases greatly augments the ease of the procedure.

In the two cases in which the author employed this method the ends of the two sounds could be felt distinctly in the perineum, separated from each other about an inch and a quarter.

Incision is then made between the two sounds and the continuity of the urethra

can be reëstablished readily. The danger of urinary infiltration or sepsis following intravesical puncture is reduced to a minimum. The opening in the bladder made by the trocar is smaller, even, than the instrument itself, since fewer fibers of the bladder wall are cut when that viscus is distended than would be the case were it empty, hence there is no leakage. The simplicity of this operation makes it preferable to the more complicated suprapubic section.

SENILE HYPERTROPHY OF THE PROSTATIC GLAND—RADICAL CURE.

HORWITZ (*Medical News,* Jan. 23, 1904) believes the following deductions are justifiable after a review of the results of 141 radical operations for senile hypertrophy of the prostate:

1. A routine method is not applicable to the treatment of senile hypertrophy of the prostate, for every case is a law unto itself, and the treatment will depend on the problems presented by each individual case.

2. The dangers attendant on the daily catheterism are greater than those of a radical operation performed at the onset of the symptoms caused by the obstruction.

3. The proper time to perform a radical operation is reached as soon as it becomes necessary for the patient to resort to a daily catheterization.

4. The gratifying results in many cases demonstrated that the Bottini operation is one of great value. It is applicable to a large percentage of cases, which, if properly selected, will prove to be the safest and best method of relieving the obstruction caused by prostatic hypertrophy. In those cases in which stone in the bladder is associated with prostatic enlargement, litholapaxy may be performed in conjunction with a galvanocautery prostatectomy.

5. A complete prostatectomy is justifiable if performed before the individual has broken down in health and secondary complications have supervened. In early operation the results are most satisfactory, recovery rapid, the mortality falling between five and seven per cent.

6. A complete prostatectomy in feeble, elderly patients with long-standing obstruction and secondary complications gives a grave prognosis, and the mortality ranges between fifteen and twenty per cent. If the bladder in these cases happens to be hopelessly disabled, the results obtained by the operation are negative, as they are suitable only for suprapubic drainage.

7. In ninety per cent of all cases the gland can be removed readily by means of the median perineal incision recommended by Byron, and it should be considered the operation of choice.

8. Complete suprapubic prostatectomy is shown to be more dangerous than perineal operation for obvious reasons. Suprapubic operation is safer if combined with perineal drainage.

9. Partial suprapubic prostatectomy is indicated in those cases in which a valve-like lobe exists which interferes with urination, or in which there is hypertrophy of only one of the lobes.

10. A perineal prostatectomy is considered best for those cases in which the enlargement of the lateral lobe has a tendency to progress toward the rectum, to obstruct the urethra, or to project backward into the bladder.

11. Prostatectomy is always attended with more danger than a Bottini operation and the convalescence is more prolonged; in suitable cases therefore the latter operation is the one of choice.

GALL-STONES—SURGICAL TREATMENT.

CURTIS (quoted in *American Medicine,* Jan. 16, 1904) urges operation while the stone still remains in the gall-bladder or cystic duct, and before grave infection has developed. The serious accidents of infection are thus avoided, and any inflammatory condition which may exist can be improved or cured, in the same way that drainage cures urinary cystitis. The stone is removable before it enters the common duct, thereby preventing all dangerous consequences likely to follow the presence of a stone in that passage, and further attacks of cystitis or colic are prevented. Further calculous formation is prevented or impeded, for the infected gall-bladder may be excised or rendered so healthy by drainage that no more calculi will form. Latent cases are by no means free from danger. The possibility

of secondary pancreatitis must be kept in mind, also that of carcinoma of the gall-bladder, which is more common than has been supposed.

Without reference to more important results it is the general feeling of those experienced in surgery or cholelithiasis that in the latent cases, while the patients do not present symptoms pointing directly to the biliary system, they are affected with various dyspeptic complaints, and the latter can be permanently relieved or cured by operation.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

An extremely interesting discussion took place this month at the Chelsea Clinical Society, one of the most vigorous of our suburban medical societies, on "internal secretion" in disease and in treatment. Sir Lauder Brunton opened the discussion with some general remarks on the subject, pointing out that several glands have an internal as well as an external secretion, and that on the one hand deficiency of the internal secretion might cause disease—as happens in some cases of diabetes which appear to be due to a deficient production of the sugar-destroying internal secretion of the pancreas—while on the other hand excess of the internal secretion might be almost as harmful, a fact proved by the occurrence of all the symptoms of exophthalmic goitre, except the exophthalmos and the goitre, when thyroid was used in too large quantity for myxedema. Even the kidney probably has an internal secretion, although at present but little is known of its character. Sir Victor Horsley said that not only might internal secretion be entirely lacking (as in cases of cretinism), but it might also be perverted in character, so that instead of being beneficial it might act as a poison; this is shown to be the case sometimes with simple goitre. In exophthalmic goitre it seems clear that certain nervous symptoms are directly due to the toxic effect of altered thyroid secretion; but it is difficult on this view to explain the beneficial effect of certain methods of treatment. There is no doubt about the curative effect of systematic electrical treatment with the faradic current in many cases of exophthalmic goitre, and it is equally certain that the removal of the isthmus of the thyroid is equally beneficial in some cases; but how are these facts to be explained? It may be that such treatment reduces the hyperemia of the gland on which some alteration of secretions may depend.

Referring to the therapeutic uses of thyroid extract Sir Victor Horsley said that where enlargement of the gland is already associated with symptoms of poisoning by excessive or altered secretion it is not to be expected that the extract will prove of service, but in cases of parenchymatous goitre it is sometimes distinctly beneficial. He mentioned also a curious relation which exists between animal proteid in food and the proper secretion of the thyroid; adenoma of the thyroid and also parenchymatous goitre are often associated with a great dislike for meat food, and if such food is given the patients become much depressed and suffer with headache. Similarly dogs after the thyroid has been removed show symptoms of acute poisoning if fed on meat.

Unfortunately the knowledge that a disease is constantly associated with anatomical lesions of one or other of the glands which have an internal secretion is not always sufficient to tell us the treatment of that disease; it might be expected that acromegaly, in which enlargement of the pituitary body is constantly found, would be amenable to treatment by administration of pituitary body in some form, and that Addison's disease would respond at once to treatment with suprarenal extract; but experience shows that this is not so. Dr. Rolleston, however, considers that suprarenal extract is of some value in Addison's disease, often causing temporary improvement and occasionally producing a change almost amounting to a cure.

Dr. Hale White emphasized the large part played by the pancreas in producing diabetes. A small, atrophied, hard pancreas is specially associated with diabetes: out of nineteen cases in which such a condition was noticed at autopsy, sixteen had been the subjects of diabetes; but undoubtedly there were cases of diabetes in

which no disease of the pancreas could be detected. The relation of Graves's disease, exophthalmic goitre, to some auto-intoxication by an internal secretion from the thyroid gland seems indisputable; but it is difficult to reconcile this with the fact that this disease shows a special tendency to occur in women who have suffered with rheumatic fever, or to understand why there should be a hereditary liability to this condition, or why it should occur so much more often in women than in men.

At the Epidemiological Society a discussion took place recently on the etiology of scurvy, the basis of the discussion being an outbreak of supposed scurvy in the Transvaal during the Boer war. It was stated that the disease attacked natives almost exclusively, and that its intensity was not related to diet but to sanitary conditions; moreover, that it occurred even when fresh vegetables were freely used. It was suggested therefore that scurvy is a specific infection, and, as in these cases, might be prevented or cured by attention to antiseptics in the mouth.

We have heard so much recently about ptomaine poisoning as a cause of scurvy that we are not surprised to hear it suggested that scurvy is a specific infection. No doubt there will soon be claimants in the bacteriological department; but in the meantime one can only feel sorry that unnecessary confusion should be introduced into a really difficult subject by these ill-considered theories. In this particular discussion it was remarkable that only one speaker hinted at the possibility that the cases mentioned were not scurvy at all. It would be well if the fact that a mere sponginess and swelling of the gums is not sufficient evidence of scurvy were more generally recognized. In the epidemic under consideration there was apparently nothing more than an infective stomatitis, the scorbutic nature of which was not merely unproven, but was extremely improbable, in the absence of the general symptoms, hemorrhagic and otherwise, which characterize scurvy.

The recent Hunterian Lectures by Mr. Mayo Robson were full of interest. The diseases of the pancreas have been so little studied until the last few years that to most practitioners who obtained their qualifications ten or twenty years ago the symptoms of pancreatic disorders are probably almost unknown, and "steatorrhea" and "azotorrhea" convey but little information. As general symptoms of pancreatic disease, the following were mentioned: fatty stools, which are generally pale and greasy-looking; imperfect digestion of albuminous foods, so that muscular fibers of meat can be seen in the stools even with the naked eye; a form of diarrhea, the stools being bulky, soft, and greasy; emaciation; nausea and vomiting; jaundice; fever, in the inflammatory diseases of the pancreas; pain and tenderness in the epigastrium; hemorrhages from mucous surfaces and in the skin; glycosuria. Hemorrhage into the pancreas causes symptoms varying in severity from transient attacks of mild colic in the epigastric region, up to violent pain with collapse and death within a few hours. This condition is difficult of diagnosis at first, but when it has lasted long enough to be followed by acute pancreatitis, it can be diagnosed with some degree of confidence. Acute pancreatitis, with its sudden epigastric pain, vomiting, constipation, and collapse, is very apt to be mistaken for intestinal obstruction, or for perforated gastric ulcer, or even for acute ptomaine poisoning; or the slight jaundice which is often present may lead to suspicions of some cholecystitis. A valuable means of diagnosis is the so-called Sahli reaction: iodoform enclosed in a gelatin capsule hardened by formalin is given by mouth; if iodine fails to appear in the urine within eight hours after the capsule has been swallowed, the pancreatic digestion by which it should have been dissolved is shown to be impaired.

Since I wrote my last letter the King and Queen have honored Cambridge with their presence; and in opening the new laboratories of the university his majesty pleaded for new endowments for that "study and research which are essential to the maintenance and the greatness and the welfare" of his empire.

Within the past week also an event of great interest in the medical world has also taken place—the annual election of the president of the Royal College of Physicians. It is rarely indeed that any president has held office beyond the fifth year, but Sir William Church has just been reëlected to the presidency for his sixth year, a mark of the high esteem in which he is held by the profession in this country.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Drs. Marfan and Menard have recently published the statistics of the diphtheria wards of the Enfants Malades hospital from May, 1902, to May, 1903. One thousand one hundred and forty-two children were treated, and the gross mortality was 15.8 per cent. If all deaths taking place in the first twenty-four hours are put aside, the mortality is only 11.1 per cent, and by removing all deaths during the first two days, the mortality is only 9.3 per cent. A large number of prophylactic injections were made: one thousand children, brothers and sisters of the children affected, were injected, the dose being five cubic centimeters. Only two were taken with diphtheria, respectively twenty-four and four days after the inoculation. The cases were light. During this period diphtheria was not so severe, but the cases of croup were more frequent—544 out of 1142 cases of diphtheria. The cases of croup during measles were also intubated, which destroys the classic idea that tracheotomy is necessary in such cases. Local treatment was reduced to its simplest form, and only employed in gangrenous cases.

The suppression of salt in the treatment of hyperchlorhydric dyspepsia has been tried recently by Dr. Vincent, of Paris, and with good results. In one case during a first period the patient was given 12 grammes over and above the usual amount. An analysis of the gastric juice showed there was a notable increase in the amount of chlorides secreted, and this applied especially to hydrochloric acid. The hypochloride regimen was then established to such a degree that the amount of chloride of sodium secreted by the kidneys was only 40 centigrammes. The various morbid symptoms disappeared, and an analysis of the gastric juice showed a remarkable decrease in the amount of chlorides and hydrochloric acid secreted. This would seem to indicate that this regimen is of benefit in certain hyperpeptic forms of dyspepsia.

The sewage of Paris used to be in great part poured into the Seine, which thus remained infected for the rest of its course. This has been changed slowly, more and more of it being spread over the fields or "champs d'épandage" of Gennevilliers. Acheres, and other suburban places. In 1902, 226,000,000 cubic meters were thus disposed of, and only 28,000,000 cubic meters are still carried off by the Seine. It was at first thought that the vegetables grown in such localities might prove to be dangerous to the public health. No indications of this have been seen so far; for instance, in 1902 there were 202 deaths in Gennevilliers out of a population of 10,056, not one being caused by diphtheria, typhus, typhoid fever, or intermittent fever, and out of the 18 deaths due to diarrhea, 15 were caused by infantile diarrhea in children under one year old. Dr. de Lavarenne, who has written an article in the *Presse Médicale* on this subject, concludes that the purifying of sewage by the ground is as perfect as possible.

At a recent meeting of the Academy of Medicine, Professor Lannelongue read a report on an article presented by Dr. Villemin, in which the author describes the results obtained by interstitial injection in the treatment of tuberculous osteoarthritis. An iodoform solution is first injected into the articulation, and three to four days later a one-in-ten solution of chloride of zinc is injected into the fungosities. The tissues are transformed very rapidly. In three or four months the tuberculous tissue has become normal, and after five months movements of the articulation can be carried out. The extent of the movements is not modified by the treatment; they are if anything increased. No efforts should be made to increase them, however, as this might lead to a revival of the infection. This treatment was tried in nine cases and was uniformly successful.

Dr. Gilbert, professor of therapeutics at the Faculty of Medicine, recommends in his lectures the following preparations of creosote, which are administered by the the mouth:

> Creosote,
> Iodoform, ää 5 grammes;
> Powder of licorice, q. s. ad lxxx pills.
>
> Eight pills a day: Two in the morning, three at the midday meal, and three in the evening.

All preparations of creosote should be taken during meals. This formula is Professor Bouchard's, as is also the following:

> Creosote, 13 grammes 50;
> Tincture of gentian, 20 grammes;
> Alcohol of Montpellier, 250 grammes;
> Wine of Malaga, q. s. for 1 liter.

This wine contains 20 centigrammes of creosote for each tablespoonful, and should be taken toward the end of the meal.

Cod-liver oil should also be used in many cases, and the following solutions may be employed:

Weak Solution:

Creosote, 10 grammes;
Cod-liver oil, 1 liter.

Two to four liqueur glassfuls a day.

Strong Solution:

Creosote, 50 grammes;
Cod-liver oil, 1 liter.

One to two tablespoonfuls a day.

Creosote can also be given in rum or syrup of gentian.

The rectal method has been tried extensively in France, and the following solution has been used:

Creosote, 16 grammes;
Oil of sweet almonds, 250 grammes.

One tablespoonful beaten up with the yellow of an egg and a cup of milk at 38°.

For hypodermic injections the following should be used:

Creosote, 16 grammes;
Olive oil, sterilized, 224 grammes.

Ten, 20, or 30 cubic centimeters may be injected.

It seems that the general counsel of the department of the Gard has offered to pay doctors in that part of France the sum of 25 centimes or five cents for each vaccination. Each vaccination would have to be followed by a visit eight days later, which would mean 12½ centimes for each call. The medical syndicate of the Gard has refused to consider this offer.

The well known dermatologist, Dr. Brocq, has published in a recent number of the *Presse Médicale* an article on the use of the issue as a therapeutic agent in certain arthritic conditions. Dr. Brocq began by saying that it would seem strange to speak of this ancient treatment, which was given up by well-nigh all doctors, though it was most enthusiastically recommended seventy years ago. Dr. Brocq recalls two cases in his practice which show the excellent results which may be obtained from this therapeutic agent. A patient, seventy-two years old, who had been overfond of the pleasures of life, and had suffered from gout and arteriosclerosis during twenty years, began to show signs of mental degeneracy. His digestion was somewhat impaired, he was affected with bronchitis and oppression, was somnolent and apathetic, and his general condition caused serious anxiety to his family. At this time he burned himself accidentally, and the wound did not heal, but continued to suppurate, notwithstanding the fairly careful dressings used. The general condition of the patient had improved, however, his intelligence having recovered its lucidity. He wished to have the wound closed, and this was done, but in a few days the general condition began to get worse, and after consulting with the family physician it was decided to put a cautery or issue on the arm, and the general condition improved immediately. In another case the patient was sixty-two years old, asthmatic and affected with vesical calculi. During the last four years his condition had grown steadily worse, and he had shown all the morbid signs of generalized arteriosclerosis. The following symptoms had been noticed: edema of the lower limbs with albuminuria varying in quantity from 10 centigrammes to one gramme, phlebitis, emboli, which caused pulmonary infarctus several times, pleurisy, etc. Three years ago there was an attack of apoplexy with loss of consciousness, aphasia, and right hemiplegia. Later there were symptoms of intestinal obstruction. The treatment of all this complexus consisted in the use of well-nigh complete milk regimen, some castor oil every morning, some hydrochlorate of quinine (25 to 50 centigrammes), dry cupping and pointed actual cautery, and sometimes wet cups. Last year a nurse gave him an injection of ether during an attack of epilepsy, and this produced an eschar four to five centimeters long and three centimeters wide. Suppuration set in after ten days, and the patient began to improve. After three months the cavity began to heal, and the condition of the patient seemed less good, and an issue was made on the left arm. Each time this issue does not suppurate well, the patient's health declines. Dr. Brocq spoke of this as showing the importance of studying the vital reactions of each patient, and not contenting oneself with examining the morbid anatomy resulting from certain diseases and the bacteriology which shows us their causes.

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Original Communications.

THE TREATMENT OF SYPHILIS.

BY H. M. CHRISTIAN, M.D.,

Clinical Professor of Genito-urinary Diseases, Medico-Chirurgical College of Philadelphia.

Syphilis, occurring among the upper and middle classes of our people, in individuals endowed with good health and of fairly good habits, if seen early in the secondary stage of the disease and promptly and properly treated, is, in the great majority of cases, a perfectly curable disease. This is a proposition generally accepted as true at the present day by those having the widest experience in the treatment of the disease. Equally well recognized is the fact that syphilis occurring among the half-starved and half-washed members of the community, and in habitual drunkards, cannot be cured. The same may be said for cases having once developed tertiary lesions. Treatment can cause their disappearance, but cannot now cure the disease.

It would seem to the writer as if the time was ripe to call a halt on the spirit of ultra pessimism which has so long possessed the medical profession at large on the subject of the curability of syphilis, and which is so largely responsible for the attitude of the laity on the matter, so many of whom upon being told that they have contracted syphilis manifest a keen desire to write their wills and go in search of a revolver. There are, I am sure, in nearly every community of any size in this land men of business and social prominence,

occupying positions of trust and honor, who have at one time in their lives contracted syphilis, who have been cured, and are the fathers of many healthy children.

Granting then that the disease is capable of being cured, the first question that naturally arises is, When shall constitutional treatment be instituted? I think it is pretty generally admitted to-day that by far the safer plan is to wait for the evolution of cutaneous lesions before beginning constitutional treatment. The reasons for so doing are very obvious to those who have looked at all closely into this subject. In the first place, notwithstanding the parallel column of differential diagnosis between chancre and chancroid given in the text-books, those having the widest experience in the diagnosis and treatment of these conditions will agree with me, I am sure, that in very many if not a majority of instances an absolute diagnosis cannot be made. Again, it is a well developed clinical fact that the early administration of mercury does not in any way avert the disease or prevent the appearance of an eruption. It has only been found to modify the character and time of development of the skin manifestations; in other words, the evolution of the constitutional signs of the disease is very materially deranged. One can readily appreciate the hopeless confusion in the mind of the physician who, having mistakenly diagnosed a chancroid as a chancre, has pronounced the patient to have syphilis, has instituted immediate constitutional treatment, and subsequently finds that the expected rash fails to materialize. This uncertainty in the mind of the physician is of small moment, however, compared with the impression his recklessly spoken words have made upon the mind of the hapless patient, an impression that no time will ever eradicate. There is nothing to be lost and everything to be gained by waiting six or seven weeks for the natural evolution of the disease. There are, however, some conditions that arise occasionally that call for the early administration of mercury. These are: (1) when the chancre is located on the lip; (2) when from its position it may lead to the infection of others, as on the finger of the surgeon, obstetrician, or hospital orderly, or on the nipple of a nursing woman; (3) in those rare instances in which the initial lesion becomes phagedenic and threatens to destroy the prepuce or glans penis.

In taking up in detail the consideration of the treatment of secondary syphilis it is well to recognize three types of the disease that are usually encountered: (1) the benign form; (2) the benign form with a tendency to relapse; (3) a severe form of the affection.

The particular type which the disease assumes is of course, as in all infectious diseases, dependent upon the dose of the poison received, and the fertility of the soil on which it is deposited. I think there is little doubt but the majority of the cases of secondary syphilis seen to-day, at least among the better classes, are of the benign type. Here the macular rash appears at the proper time and is fairly well distributed over the trunk and limbs, rarely on the face. Accompanying the rash there is general adenopathy, with more or less sore throat and some few mucous patches perhaps in the mouth, with little if any alopecia. In this type of syphilis it will generally be found that the internal administration of mercury protiodide, one-third of a grain, three times daily, will probably be all that is necessary to bring about a prompt disappearance of the eruption. If, however, this should prove rather slow in fading away a fourth pill can be given at bedtime. As a rule this is all that is indicated. In these cases the type of the disease, comparatively speaking, is so mild that there is constant danger that the patient, unless warned to the contrary, may break away from all treatment, considering himself as entirely cured, thereby laying the foundation for the development of tertiary lesions at a subsequent time.

The second type of the affection is most apt to be found developing in individuals whose general system is somewhat below par, addicted perhaps to the excessive use of alcohol and tobacco. In these patients the evolution of the cutaneous lesions is perfectly regular, but it soon becomes manifest that there is a constant tendency to the recurrence of mucous patches on the tongue, lips, and buccal mucous membrane. The original erythema is slow to disappear, and the papular form of lesion appears very early. Recurrent moist papules about the anus and scrotum are frequently noted. In this variety of syphilis I have found the tonic treatment with

mercury so strongly advised by Keyes to be the best. My method in such cases is to instruct the patient to take an extra mercury protiodide pill every other day until the teeth become tender, or the gums bleed when lightly touched. The number of pills required to attain this result is divided by two, and the result constitutes the patient's daily tonic dose of mercury. Should there appear at any time during the secondary stage a fresh outbreak of a rash or mucous patches, the patient can be placed temporarily upon his maximum dose, which is of course known.

The third type of secondary syphilis presents a much more difficult proposition than either of the others just described. In these cases there is preceding the rash a marked leucocytosis with decided loss of flesh. The appearance of the macular rash is accompanied with all the symptoms of an eruptive fever, headache, rise of temperature, and nocturnal osteocopic pains. The erythematous lesions are rapidly followed by the appearance of a widely diffused papular and papulosquamous eruption. It is useless in these cases to lose valuable time by relying solely upon internal medication. Moreover, in the majority of these cases the gastrointestinal tract is so greatly disturbed that mercury given by the mouth will not only not be assimilated, but will greatly aid to increase the gastrointestinal derangement. Mercurial inunctions constitute our only effective weapon in these cases if we wish to gain the mastery over the disease. The preparation most commonly employed is the official mercurial ointment, one drachm of it being rubbed well in on different parts of the body in succession night and morning. The patient in addition wears constantly an abdominal bandage, on the inner side of which is spread a thin layer of the ointment. Mercury vasogen is a rather recent compound which I have used quite a little, and have come to believe that it is more rapidly absorbed and therefore more effective in controlling the disease than the older blue ointment.

One great objection to mercurial inunctions is the local dermatitis often produced by their prolonged use. This can generally be avoided if the skin be thoroughly cleaned with green soap and alcohol prior to employing the inunction. Frequent warm salt water baths constitute a most important and valuable adjunct to the treatment by inunction. It is wise at times to omit the inunctions for a day or two, especially if there is noted any tenderness of the gums or soreness of the teeth. When the skin lesions have disappeared and the general condition is good, it is advisable to discontinue the inunctions and place the patient upon the internal use of mercury protiodide.

If subsequently during the secondary stage other manifestations of syphilis appear, another course of inunctions should be pursued.

These three forms are I think fairly representative of the types of secondary syphilis as encountered in practice. There is another type, the precocious malignant form, only seen as a rule among the lower classes of the community and where there are poor hygienic surroundings.

There are several preparations of mercury which it might be well to mention, all of which can be employed to great advantage alternately. The protiodide pill of Garnier and Lameureux causes less digestive disturbance I think than the American pill; to be sure this may be due to the fact that it is only one-half the quantity. Mercury and chalk, the favorite combination of Jonathan Hutchinson, is a very useful preparation to employ temporarily in cases in which the protiodide causes some diarrhea; but it has always seemed to me too attenuated a remedy to be of any real service during the active stage of the disease. Another preparation of mercury recently placed before the profession is mercurol, which I have found very useful to alternate with the protiodide; administered in one-grain doses three or four times daily it will be found very valuable in cases where the ordinary preparations of mercury cannot be assimilated.

The particular preparation of mercury to be employed during the secondary stage of syphilis is not nearly so important a matter as is the necessity of impressing upon the patient the fact that, in order to give himself the best chance of making a permanent recovery, a continuous course of treatment for eighteen months will be required. At the outset of treatment the patient's weight is the best criterion as to the action of the remedy upon the disease. If the weight does not increase, or on the other hand gradually decreases, either too much or too little mercury is

being administered, or the wrong preparation is being employed.

Too much stress cannot be laid upon the injunction that the patient should be treated as well as the disease. Cod-liver oil, iron, quinine, and whiskey have time and again proven of service, equal almost to that of mercury in the treatment of the early stages of secondary syphilis.

After one and one-half years of active mercurial treatment the patient should be placed upon the mixed treatment usually employed in the tertiary stage of the disease. If there are no tertiary lesions present in the case, the mildest form of mixed treatment is all that is necessary. This can be one-twelfth of a grain of mercury bichloride or one-twentieth of a grain of mercury biniodide combined with two to five grains of potassium iodide administered three times daily. This treatment should be kept up steadily for the space of one year. In those cases where potassium iodide deranges the digestion it can be given alone in milk, or the syrup of hydriodic acid in combination with mercury bichloride can be used. After a year of mixed treatment similar to this, a course of intermittent treatment should be instituted for about six months, at the end of which time, should no lesions appear, all treatment can be safely discontinued.

I want to reiterate my belief that a course of treatment such as just described, if faithfully carried out, will bring about a cure in seventy-five per cent of cases of syphilis occurring in individuals possessing good general health, good habits, and living under proper hygienic conditions. When tertiary lesions have once appeared I do not feel that we are ever justified in promising a permanent cure. All we can expect to do under such circumstances by treatment is to bring about the absorption of the lesions. At the same time we should insist upon a prolonged, continuous course of treatment, with the view of preventing any subsequent return.

In cases of ulcerating tubercular syphilodermata and gummata the best results can be obtained by employing potassium iodide in from ten- to twenty-grain doses three times daily, together with the use of mercurial inunctions twice daily. Personally, I am thoroughly convinced of the fact that mercury is equally as valuable a remedy in tertiary as in secondary syphilis, and that its use in connection with moderate doses of potassium iodide will be found to prove much more effective than the sole employment of enormous doses of potassium iodide.

THE ANTISEPTIC TREATMENT OF TYPHOID FEVER.

By Leighton Kesteven, M.R.C.S. Eng.,
Tismore, New South Wales, Australia.

Having been one of the earliest to direct attention to the antiseptic treatment of typhoid fever, and certainly the first to adopt eucalyptus as the specific antiseptic for that purpose, I am impelled by the various articles appearing lately in the Gazette on the antiseptic treatment of typhoid fever to again call the attention of the profession to its great value and simplicity of administration.

In the London *Practitioner* for May, 1885, I wrote an article pointing out its special action, and again in the same journal for April, 1887, I replied to certain criticisms on it which had appeared in the *Bordeaux Journal de Médecine* and some other continental journals. In 1895 I republished these in pamphlet form. In my first paper I gave the results of a series of 220 cases which worked out with a total mortality of four cases—*i.e.*, less than two per cent. Since July, 1884—nearly twenty years ago—I have not lost one case!

My treatment was summarized in *Sajous's Medical Annual,* and Burney Yeo mentions it fully in his book on the treatment of fever, and it has been reviewed in the medical journals, but I do not think it has received that attention which it merits or any full trial amongst the many other antiseptics which have been suggested. In none of the articles which have appeared in the Gazette do I see eucalyptus included, though many others are enumerated.

Peck, of Kentucky, in the Gazette, and Butler in the *Medical News,* agree with what is now a very generally accepted idea, that antiseptic treatment of typhoid fever, while it cannot lay undoubted claim to destroying the germs in the circulation, can and certainly does diminish the putrefactive and fermentative changes in the intestinal tract. I am

satisfied that the stools are practically sterilized by the antiseptic treatment and the risk of infection diminished, whilst if the antiseptic administered be at the same time a healing agent great relief is given to the symptoms caused by the local manifestation of the disease in Peyer's patches and the small intestines generally. Eucalyptus specially answers to this requirement, being one of the best healing applications we have. At the same time it possesses very distinct antipyretic powers and reduces the temperature with more permanency than quinine, from the action of which there is always a corresponding upward rebound.

The *Medical News* of September 9, 1903, summarizes its conclusions on the subject by winding up with the remark, "Of drugs none are known to be better than Murchison's dilute hydrochloric acid mixture." I can only say that prior to my experimentation with eucalyptus from 1881 to 1885 (when I first wrote on the subject) I had treated nearly all my cases with the hydrochloric acid, but though I had fair results I certainly never brought my rate of mortality to *nil*, as it has practically been since then.

Further than this, I have no hesitation in claiming for eucalyptus that it gives by itself greater relief to all the general symptoms of typhoid fever—such as tympanites, tormina, leathery-brown tongue, bloody sordes, dry skin, etc.—than any other drug which has ever been used, and reduces the hardness and rapidity of the pulse without lowering the general strength.

As an abortive I need only quote from my own records an average duration of fourteen days from the commencement of the attack to the reëstablishment of normal temperature. Twenty days is the longest I have seen a case last before recovery.

It is not a particularly unpalatable drug, and its flavor can be masked a good deal for those who dislike it by various adjuvants, such as glycerin, spirits of chloroform, etc. It can also be given in capsules, which Parke, Davis & Co. keep prepared. Ten minims is the minimum dose, which can be increased to 30 with safety. With this drug I administer stimulants very freely, giving Scotch whiskey in full quantity from the commencement of the case. For nourishment I give very concentrated fresh beef tea, chicken broth, cocoa, jellies, half-raw mutton juice, *white* of egg, Mellin's food, and milk. While diarrhea is present I omit the meat extracts.

Hemorrhage is almost an unknown occurrence with this treatment, but when it does occur I give ergot and tincture of eucalyptus rostrata (red gum). I should think that adrenalin would be very useful in such a case if severe.

The drug is cheap and handy. Any oil of eucalyptus if pure is effective, but I think that eucalyptol has been deprived of its special virtue.

CARBONATE OF CREOSOTE IN PNEUMONIA—A REVIEW.

By I. L. Van Zandt, M.D.,
Ft. Worth, Texas.

The January number of the Therapeutic Gazette contains an article "Regarding Croupous Pneumonia, especially its Treatment with Carbonate of Creosote," which prompts the following:

The writers, Drs. Scott and Montgomery, seem to be without prejudice, and though not indorsing the remedy, at the close recommend a continuance of the study of its clinical effects, with increased dosage.

With regard to statistics compiled by me (1130 cases, 56 deaths, reported by seventy-one physicians, from 22 States, Indian Territory, Ontario, Mexico, and Honduras) they say: "It is obvious . . . that the result of five, or ten, or fifteen cases in one physician's hands *can* be combined with the results of others to show most excellent percentages."

To one not seeing the table published, the remark might seem discreditable to it; but when it is recollected that I published every report sent me, even three reporting a loss of one hundred per cent, and that they came from such a wide territory, with such varied climates, it seems that the imputation of what *can* be done should not be held against the report. Had I been disposed to *make* statistics, by omitting eleven reports I could have shown sixty reporters, 999 cases, 29 deaths—a little less than three per cent. But when I sent out my circular of inquiry to almost seventy-five journals and

a very few individuals, I determined to make an honest report, and so I did.

They say: "It is a noteworthy fact that of the seventy-one contributors, twenty-six are from Texas." What use they expect their readers to make of this statement I do not know. The fact mentioned is susceptible of explanation without discredit to Texas physicians, who, I suppose, will compare not unfavorably with those of any other section.

On January 8, 1894, I observed beneficial effects in a case of pneumonia to which I had the day before given creosote for another indication. Continuing to prescribe the remedy and getting good results, I told my friends, and some of them began its use and continued with such results; so that when I read my first paper on the subject, in June, 1898, before the North Texas Medical Association, then the largest medical association in the South, I had several present who could and did indorse my teaching. This started the ball rolling. January, 1901, I read a paper before the Central Texas Association, covering another area of the State. In October of the same year, by request of the chairman of the section of practice, I furnished a paper to the Southwestern Tri-States Medical Association. These papers read before Texas audiences, and the first published only in a Texas journal, naturally brought forth more fruit in Texas than elsewhere.

The writers then give a report of sixty-seven cases treated in the Pennsylvania Hospital and at the Philadelphia Polyclinic, with ten deaths, 14.9 per cent, with abstract of fatal cases. They say, "The degree of toxemia in all cases, barring fatal ones, was mild," but do not say whether in their opinion this was attributable to the remedy or not.

In January, 1901, I wrote: "In cases which persist longer (than two or three days) there is generally an amelioration of symptoms and the coming of an appetite to which I was formerly a stranger in pneumonic cases."

Scanning their abstract of fatal cases we find No. 1 was sick eight days before the treatment began. No. 2, complicated with erysipelas, showed on autopsy bronchiectasis of left lung (right was pneumonic), acute hemorrhagic nephritis, cirrhosis of liver, splenic tumor, and edema of larynx, and this note follows: "Had his liver been normal he might have withstood the erysipelas better, though the renal condition was actively responsible for his death."

No. 3 was sick twenty-three days before admission and ought to be left out of the table. Passing by Nos. 4 and 5, we find No. 6 had pneumonia five days when an erythematous rash developed, followed by desquamation and later by nephritis, which caused his death, he having "seemed convalescent" twelve days after admission. This case should be in the list of recoveries, he, as it would seem from their report, having died from a sequel of scarlatina.

No. 9 had "left-sided hypertrophy of the heart, with mitral regurgitation." No. 10, sick twenty-two days before admission and three days after, should be left out.

Leaving out Nos. 3 and 10, and placing No. 6 on the other side, we have 65 cases, 7 deaths, a little less than 11 per cent—a result not very discreditable to the carbonate of creosote considering the material.

I will say, as I have said before, I do not believe that pneumonias from *different* infecting microörganisms are equally amenable to treatment by creosote. I have lately treated with good result a case, shown by the microscope to be streptococcic, with streptolytic serum; and I predict that the findings of the microscope will at no distant day be made the basis of treatment of pneumonia.

ON THE CLINICAL IMPORTANCE OF THE SPECIFIC GRAVITY AND ALKALINITY OF THE BLOOD.[1]

By Hubert Richardson, M.D.,
Late Pathologist to Mount Hope Retreat; Demonstrator of Physiological Chemistry at the University of Maryland.

The specific gravity of the blood plasma and its degree of alkalinity are of very great physiological importance, variations from normal occurring in many diseases, causing an array of symptoms which are not often recognized; nor is their importance realized in treatment.

[1]Read before the University of Maryland Medical Society.

By the addition of a sufficient quantity of distilled water or of water containing neutral salts up to a certain percentage, the percentage varying with different salts and with the same salts for different species of animals, the hemoglobin is dissolved from the red corpuscles into the surrounding fluid. A solution containing such a percentage of neutral salts as will keep the corpuscles unaltered in form and size without the hemoglobin being dissolved out is said to be isotonic—that is to say, it has the same osmotic pressure as the plasma; solutions containing a lower percentage of salts are hypoisotonic, and when mixed with blood dissolve the hemoglobin out of the red corpuscles, also causing them to increase in size and become irregular in shape, owing to the decreased pressure of the fluid in which they are suspended. Solutions containing a higher percentage of salts than isotonic solutions are hyperisotonic, causing the red corpuscles to shrivel up. Slight conditions alter the permeability of the walls of the red corpuscles, causing the proteids to pass out into the plasma, and chlorides and phosphates to pass into the corpuscle.

The specific gravity of the blood of men varies from 1.057 to 1.066, of women from 1.054 to 1.061. It is highest in the child at birth, averaging 1.066, the mother's averaging 1.050; the blood of the fetus is also higher than that of the mother. The specific gravity of the arterial and venous blood is the same; it falls after hemorrhage owing to the blood taking up fluid from the tissues; the fall is followed by a rise to above normal in about six hours, returning to normal after twelve hours.

The method of estimating the specific gravity of the blood clinically is simple and of advantage, as its variations are roughly a gauge for the amount of hemoglobin present. Solutions of glycerin and water are made of definite specific gravity between 1.030 and 1.080; a drop of blood is allowed to fall into the solution from a fine pipette, and the fluid in which the drop neither rises nor falls is of the same specific gravity as the blood.

Reaction.—As has been stated the blood is of alkaline reaction, but as yet no simple method has been devised which will give results accurate enough for clinical work. It has been estimated by complicated methods to be equal to 0.2 gramme of NaOH per 100 Cc.; the alkalinity is lowest in the morning, increasing to about midday, and again falling in the evening; it rises during digestion, is diminished by muscular exercise, especially on a diet containing little proteid, but on a diet rich in proteids the variations are slight; consequently herbivora are more easily poisoned by acids than carnivora. The cause of this is that under a proteid diet more ammonia is formed in the system, which combines with and neutralizes the acids.

The alkalinity of the blood is due to the carbonate and phosphate of soda present in the plasma; in the corpuscles there are organic substances of a weak basic nature. Saturation of the blood with CO_2 causes the serum to become more alkaline and the corpuscles less alkaline.

Blood, although alkaline, contains acid sodium phosphate NaH_2PO_4 and acid sodium carbonate $NaHCO_3$, which have the power both of fixing bases and of turning other acids out of combination. In this sense the blood has a certain acidity which in normal venous blood may equal 0.162 to 0.232 NaOH per 100 Cc. blood and may be increased in diabetic coma to 0.347, in fever to 0.272.

Therapeutically it is of importance that both the specific gravity and the alkalinity of the blood should be kept at normal, and in many pathologic conditions there are deviations from the normal which produce more or less marked symptoms; in fact anemia of bulk and hydremia, the result of the increase and decrease of the specific gravity, and acidosis, the result of decreased alkalinity, are conditions producing a complicated array of symptoms which might almost be classed as definite diseases.

Under ordinary conditions, when there is a greater elimination of water from the system than there is taken in, the tissues give up their water to the blood-stream in the attempt to keep the specific gravity at the normal, but pathologic conditions arise where the tissues are no longer able to supply the required water, the elimination depending probably on blood-pressure, continuing until the bulk of blood in circulation is materially diminished, and there is therefore a decreased supply to and consequent decreased ac-

tivity of all the organs of the body. The elimination of water from the system during the twenty-four hours is considerable:

By the lungs at rest..	1000 Cc.	At work.....	2279 Cc.
By the urine at rest..	1000 Cc.	At work.....	1000 Cc.
By the feces about...	100 Cc.	At work.....	100 Cc.
By the sweat	500 Cc.	At work, variable to	2000 or 8000 Cc.

A patient at rest in bed will therefore eliminate about 3000 cubic centimeters in twenty-four hours.

The patient receives water with his food and drink; in the former as cooked the amount is large, certainly over 75 per cent. The total amount of water in the body is about 75 per cent of its total weight, and the blood is about 6 per cent of the total body weight. If a patient takes too little fluid the blood draws upon the tissues for the water required, the total body weight decreasing. In training a man "to weight," as is the custom in some athletic sports, one of the first processes is to limit the amount of fluid taken and also to eliminate as much as possible by artificial sweating. One reason, and in many cases the principal reason, why a patient loses weight is because he eliminates more water than he takes in; as long as the tissues can supply to the blood-stream the quantity lost no anemia of bulk results, but there comes a point where the tissues can spare no more fluid, the blood becomes concentrated, and the bulk of blood in circulation diminishes to a greater or less extent. Herein lies the benefit obtained by the injection of physiological normal salt solution, or better still a solution containing the inorganic salts in the same proportions as they exist in the plasma. When possible the solution can be given by the mouth at the rate of about 250 cubic centimeters every two or three hours.

No method has been devised whereby the conditions of anemia of bulk can be definitely established. The diagnosis, however, can be made by collecting the total quantity of urine passed in the twenty-four hours, and should it be less than 500 cubic centimeters administration of artificial serum is indicated.

Acidosis or decreased alkalinity of the blood can be brought about either by the administration of acids or from their formation in the system, or by the decreased intake of alkalies.

Under normal conditions the alkalinity of the blood is maintained by the ammonia formed as an intermediary product in the formation of urea, which combines with and neutralizes any excess of acids formed and is eliminated in the urine.

The herbivora are extremely susceptible to the action of acids, owing to the small amount of proteid they take and consequent small formation of ammonia available to neutralize the acid. The symptoms which follow the injection of acid in these animals are: the respiration at first becomes more rapid, then slower toward the end of life, the pulse-rate and the blood-pressure first increase and then decrease, the animals become ataxic, fall into convulsions, and gradually die in coma. In carnivora and omnivora three or more times as much acid can be administered without any effect, the ammonia produced from the proteid diet neutralizing it, but if they be fed upon an alkali-free diet so as only to produce a slight loss of alkali, morbid derangement of the nervous system and disturbances of assimilation supervene.

It is evident therefore that a reduced alkalinity of the blood is of great clinical importance; unfortunately no direct method has been devised for the clinical estimation of the alkalinity due to the limitation of indicators, to the small quantity obtainable for clinical examination, and from the fact that the acid used for titration combines with proteid, consequently giving too high results. In the urine, however, we have an indicator as to the conditions of the blood.

The acidity of the urine is largely due to disodium phosphate, Na_2HPO_4, being increased. If there is an excess of acid in the blood-stream it combines with the sodium present in the plasma, increasing the amount of monosodium phosphate. If the total acidity of the 24-hour urine be estimated (the total 24-hour quantity must always be used, as under normal conditions the acidity of the urine varies at different times of the day), and be found to equal 3.0 of oxalic acid or more, it is strong evidence that the alkalinity of the blood is decreased.

As the excess of acids combines with the ammonia, preventing its formation into urea, an excess of ammonia in the 24-hour urine is an indication of the reduced alkalinity of the blood. Normally the amount of nitrogen eliminated as am-

monia is about four per cent of the total nitrogen; any excess points to the condition of acidosis. Free acid is never eliminated in the urine.

The sources of the various acids which may produce acidosis are many and are but partially understood.

In the process of normal metabolism a number of acids are produced as intermediary products, the greater proportion undergoing further decomposition, only small quantities being eliminated by the urine as such, but under certain conditions their further decomposition is arrested when they combine with the alkalies of the blood, producing acidosis. The largest portion of the carbon dioxide is normally eliminated by the lungs, with but little in the urine. In acidosis the elimination by the lungs is increased and the elimination of the kidneys is decreased. Under normal conditions the elimination of carbon is about equal to that of nitrogen, in acidosis the $\frac{C}{N}$ factor may fall as low as 0.7. Uric acid, usually decomposed into urea, may exist in the blood in excessive quantities. Phosphoric and sulphuric acids also are at times formed in excess, as when there is a rapid breaking down of the cells. Sulphuric acid is formed in the intestine in the decomposition of proteid; a portion is eliminated by the kidneys in combination with alkali. A portion combines with certain organic ethers, forming ethereal sulphates, which are also eliminated by the kidneys.

In the production of hydrochloric acid in the stomach alkali is liberated so that it should not produce acidosis, but I have found that in patients with hyperchlorhydria there is a marked reduction in the quantity of alkali eliminated by the urine—in fact I have for some years used the reduction in the proportion of sodium chloride to nitrogen to diagnose hyperchlorhydria of the stomach, and find that it rarely fails. It would seem that in hyperchlorhydria there may be a condition of acidosis.

Organic acids formed in the stomach and intestines produce a number of symptoms, mostly nervous; it is evident if they remained in the intestinal tract and were eliminated by the feces they would produce no symptoms. They are acetic, butyric, proprionic, lactic, succinic, valerianic, caprionic, and perhaps formic; the most common being lactic and butyric, the former being capable of conversion into the latter. The total quantity of these acids is small, but they can produce acidosis, and they can be detected in the urine in considerable amounts.

Of the other acids formed in metabolism, sarcolactic, carbamic, oxalic, and aromatic acids all may produce symptoms.

The acetone bodies, viz., acetone, diacetic acid, *b*-oxybutyric acid, are the most pathologic in their effects.

Acetonuria is a subdivision of acidosis, due to a peculiar but little understood inhibition of oxidative processes, the excretion of *b*-oxybutyric acid representing the most advanced degree of oxidative perversion, acetone the least—in fact acetone is present in small quantities in normal urine.

Oxybutyric acid is an oxyacid with a secondary alcohol group which is readily converted into its keto diacetic acid by oxidation. Diacetic acid is acetone in which one hydrogen atom is substituted by the carboxyl group.

$$\underset{\text{b-oxybutyric acid.}}{CH_3-CHOH-CH_2-COOH} + O = \underset{\text{Diacetic acid.}}{(CH_3CO)CH_2COOH} + H_2O.$$

$$\underset{\text{Diacetic acid.}}{(CH_3CO)CH_2COOH} = \underset{\text{Acetone.}}{CO(CH_3)_2} + CO_2.$$

If the *b*-oxybutyric acid be given to healthy man it is completely destroyed, only a slight increase of the acetone in the urine being observed.

If the *b*-oxybutyric acid be given to diabetics, diacetic acid appears in the urine as well as a marked increase in the acetone, while the reverse, viz., the appearance of diacetic acid or oxybutyric acid in the urine after the administration of acetone, has never been observed, the only urinary change being the increase of acetone. If animals poisoned by carbon monoxide are injected with oxybutyric acid, a portion of the acid is eliminated as such, with some diacetic acid and acetone.

This proves that the elimination is due to want of oxygen, and that the three substances owe their origin to some common perversion of oxidation, and that at least one of the factors in diabetes is a perversion of the oxidation processes.

The appearance of acetone in excess or diacetic acid in the urine shows that either there is a deficient supply of oxygen or

that there is a perversion in the oxidative processes.

It has further been observed that lessened carbohydrate feeding is a cause of acetonuria, and that starvation also increases the acetone eliminated. Seven days' fasting increases the amount of acetone in the urine forty times; after more prolonged fasting diacetic acid and oxybutyric acid also appear in the urine. When diabetics are put on a strict meat and fat diet the acetone is increased, and diacetic acid may also appear. Even healthy persons on a strict meat and fat diet will eliminate increased amounts of acetone.

Patients suffering from inanition will not eliminate increased quantities of acetone, provided they ingest 80 grammes of carbohydrates a day.

The origin of acetone in the system is as yet unknown, the most generally accepted theory being that there is a synthesis from fragments of the proteid or fat molecules containing little carbon, which under normal conditions undergo further oxidation; but if the oxidation processes are imperfect oxybutyric acid is formed, provided there is an insufficient ingestion of carbohydrates, and therefore the carbohydrates in some way, not at present understood, assist oxidation.

Besides diabetes there are a number of other conditions in which acetone appears in the urine. Phloridzin and piqûre glycosuria are accompanied by an increased elimination of acetone, but here the diminished utilization of the carbohydrates produced by the poison and by the operation is clear.

Acetonuria is often observed in typhoid fever, scarlatina, pulmonary tuberculosis, and occasionally even oxybutyric acid may appear. The quantity of acetone appears to increase with the temperature, but here again it is perfectly certain that it is the result of diminished oxidation and absence of carbohydrate assimilation, or carbohydrate starvation resulting from improper diet. If the quantity of carbohydrate ingested is increased the acetone will be reduced.

Carcinomatous acetonuria has often been observed, and cancer patients often die in a condition resembling diabetic coma; acetone and diacetic acid in the urine are undoubtedly a bad prognostic sign, but here again it is evidently due to inanition and consequent lack of carbohydrate assimilation.

In gastrointestinal diseases acetonuria is not uncommon and is due to the diarrhea or vomiting, causing carbohydrate starvation.

A convulsive condition has been described as epilepsia acetonica, in which large quantities of acetone were eliminated after the seizure. In some cases of epilepsy that I have examined I found a slight excess of acetone, but there is a peculiar condition of the epileptic stomach digestion of the carbohydrates which I have never been able to explain. In a certain percentage of cases the bread in the stomach contents is rolled up into lumps of the consistency of putty and apparently undigested; there is no or very little sugar in the stomach contents, and soluble starch is often entirely absent. This condition could be accounted for if the saliva were free from ptyalin, or if there was a very marked hyperchlorhydria, but the saliva converted starch normally and the free HCl was below normal.

There can be no doubt that the spasm of epilepsy and probably all convulsive conditions are associated with an acidosis. In my investigations at Mount Hope I found in 1897 that there was an increase of ammonia in the urine before and after a spasm, and it is possible that in certain cases the acid may belong to the acetone group.

Acetonuria in puerperal eclampsia and eclampsia of pregnancy, as well as when the acetonuria is due to a dead fetus, is probably due to a deficient oxidation; in the puerperal and pregnancy eclampsia thyroid insufficiency is probably a cause, reducing the oxidation.

The clinical significance of acetonuria is carbohydrate starvation, and the estimation of the total acetone in the twenty-four hours, or the presence of diacetic acid, a test so easily made (by the addition of ferric chloride in excess to the urine, which gives a burgundy red color if diacetic be present), is of value in showing that the diet is insufficient in carbohydrates. As each patient has his own standard of requirements for carbohydrates, it is necessary to experiment till the quantity necessary is reached. In the starvation and freezing treatment of

typhoid fever, carbohydrate starvation is the rule, the minimum amount of carbohydrate necessary to prevent acetonuria being 80 grammes per diem. It requires the ingestion of from two to three liters of milk per diem to reach that amount. The quantity of carbohydrate can be increased by adding milk-sugar to the milk if it is thought advisable to exclude all starches.

The examination of the urine for acetone and diacetic acid is very necessary in all cases of inanition, as to be able to gauge the amount of carbohydrate required to keep up the oxidation processes, which if not complete necessarily retard or prevent the recovery of the patient.

The treatment of anemia of bulk consists in the administration of about four pints of water per diem, containing sodium chloride gr. vj, sodium sulphate gr. ij, sodium phosphate gr. ½, sodium carbonate gr. ½, potassium sulphate gr. j, to the pint. If the patient is unable to take this quantity of fluid, a high enema of a pint or two of the above solution administered night and morning will give nearly as good results. In all cases where rectal feeding has to be resorted to enemata of the above solution should be given daily; in the majority of cases where rectal feeding fails it is because enough fluid is not given. It is remarkable the rapidity with which such a solution as the above will be absorbed from the intestine, and the improvement in the condition of the patient in a few hours, in such cases as the vomiting of alcoholism and pregnancy, in which anemia of bulk is nearly always present.

Acidosis is naturally treated by the administration of alkalies in varying amounts, depending on the cause and the degree of the decrease of alkalinity. In diabetic coma enormous doses have been given, apparently prolonging life. Magnesium oxide and sodium bicarbonate in doses of ten grains each are usually effective, but on occasion much larger doses can be given with benefit, the time of administration, whether before or after meals, depending upon the condition of the stomach secretions; no matter what the dose it should always be administered in at least a half-pint of water, or even more when the quantity is large.

A NEW MODIFICATION OF OPERATIVE PROCEDURE FOR RETROFLEXION OF THE UTERUS.

By E. E. Montgomery, M.D.,
Professor of Gynecology in the Jefferson Medical College.

It is with considerable hesitancy that I attempt to present an operation which is only a modification of the procedures of other men, but which seems to me to come nearer securing the desired result than any other method. I need not recount the various operatives procedures, beginning with the Alexander operation, which have been done upon the round ligament; operations connected with the names of Alquie, Alexander, Adams, Wylie, Dudley, Mann, Ries, Webster, Baldy, Gilliam, Ferguson, Simpson, and George H. Noble. The operation upon the external end of the round ligament has been variously modified by Edebohls, Newman, Franklin Martin, Goldspohn, and others, with a view of extending the radius of its influence. The true Alexander operation must necessarily have a very limited capacity, as it is only applicable to those cases in which the uterus is freely movable; in other words, to those in which any operation is least indicated. The modifications of Goldspohn and others with a view of enlarging its influence are ineffective, as they propose to tear up structures without being able to determine their condition and effect, beyond that revealed by the sense of touch. No one has a right to break up adhesions without being able to see the condition of the structures involved, and properly treating such pathological conditions as may be present. The various operations which contemplate doubling up the round ligament or shortening it from its uterine end are utilizing the best part of the ligament and leaving its weakest portion unaffected, thus increasing the danger of the redevelopment of the lesion. The inefficiency of the Alexander operation in the worst cases led to these various procedures, and also to the operation known as ventrofixation or ventrosuspension.

This latter operation is one which is very readily performed through a single incision, affords excellent opportunity for examining and treating diseased condi-

tions of the pelvis, and gives a fair measure of assurance of the retention of the uterus forward. The suspension operation is done, of course, with a view to the union of the peritoneal surfaces of the uterus and peritoneum by a band which will stretch out and give mobility to the uterus, and yet be sufficiently durable to maintain the small organ in its anterior position. It must be apparent, however, to every one that such a condition is not an imitation of the normal one. It is adding an additional band of adhesion within the peritoneal cavity which must be a source of danger during the remainder of the life of the individual. In the procreating woman we have no positive assurance that the band of adhesion thus created will not be a source of distress during the progress of her gestation and danger at its completion. I have in one case lost a patient within twenty-four hours after this operation from a large portion of the intestine slipping below the fixed uterus and its circulation becoming strangulated. Other such cases have been recorded, and more will be, in which patients have in later years suffered from intestinal obstruction as a result of the artificial bands.

Of the later operations, that devised by Gilliam and Ferguson seemed to obviate this difficulty. It consisted in making a median incision, the treatment of abnormal conditions within the abdomen, the drawing of a loop of the round ligament through the abdominal wall into or external to the body of the rectus, which was secured by sutures. The ligament thus drawn through on either side would increase the difficulty we have already mentioned, in the fact that two bands would transfix the abdomen. To avoid this danger, they gathered together the peritoneum external to this band by a suture, which was tied, thus preventing any possibility of the intestine slipping down externally to the point at which the band transfixed the peritoneum.

Recently Simpson, of Pittsburg, devised an operation in which after the usual median abdominal incision he transfixed about one-half the thickness of the round ligament with a needle threaded with silk. Both ends of this loop were passed through the eye of a Deschamps

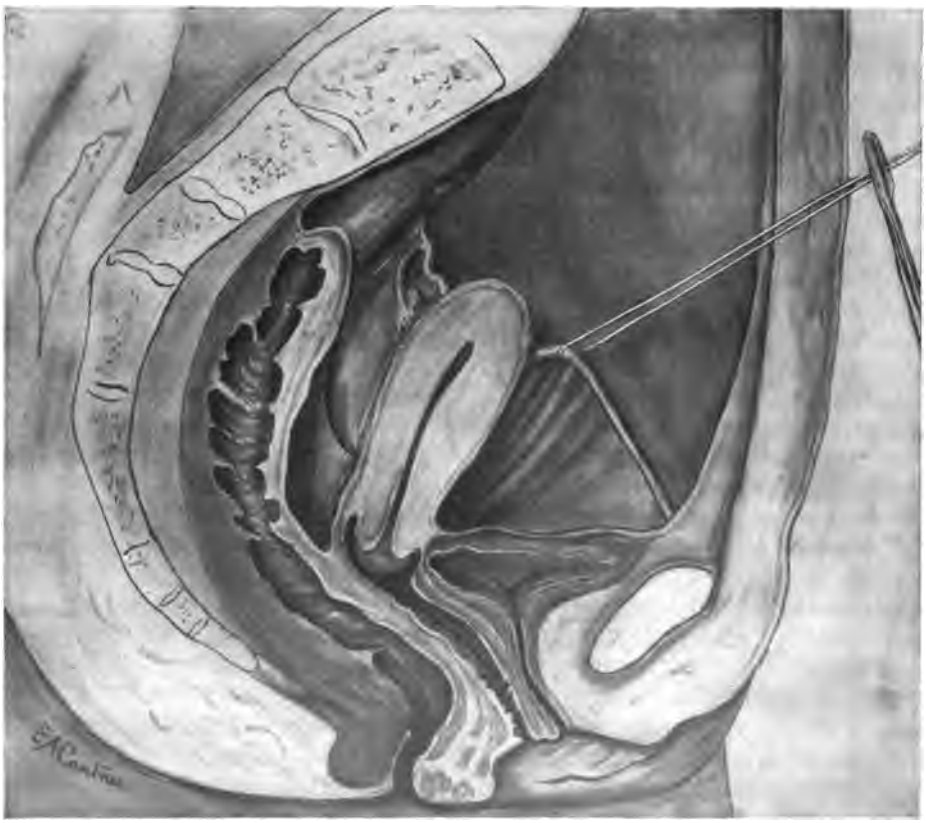

FIG. 1.—A temporary ligature about the round ligament.

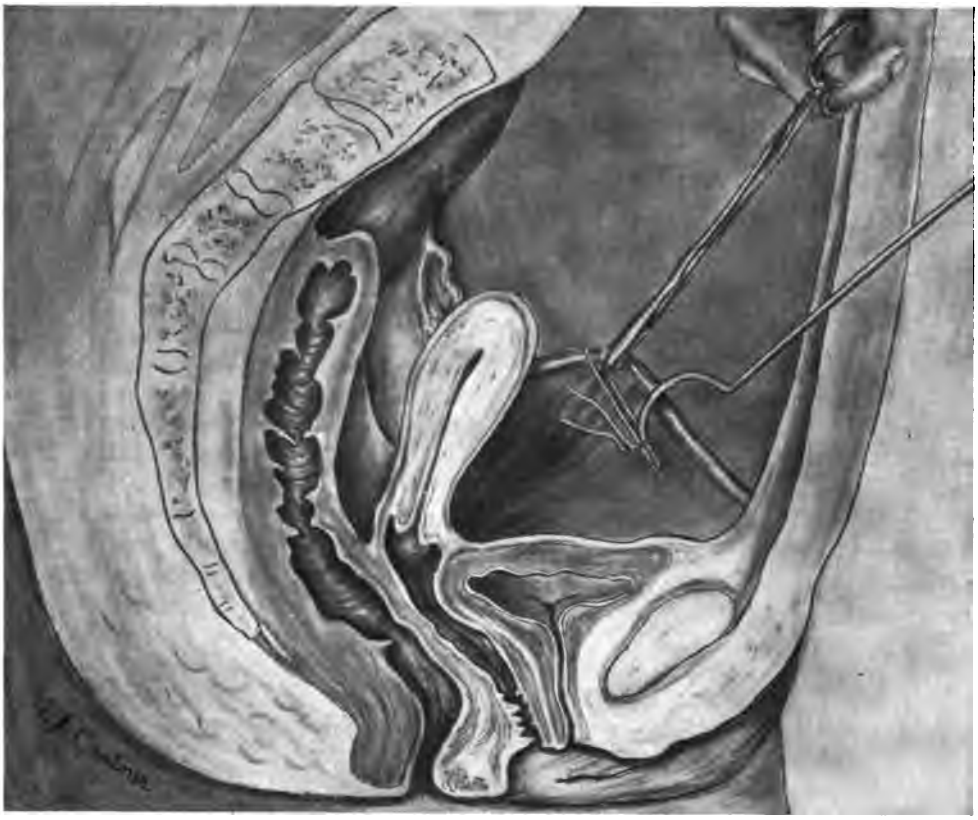

FIG. 2.—Ligature threaded in carrier, passed beneath an opening in the anterior fold of the broad ligament, while the round ligament is held tense with hemostatic forceps.

needle. A small opening was then made in the peritoneum of the broad ligament, through which the threaded instrument was carried beneath the peritoneum of the broad ligament beyond its reflection upon the parietal wall, where it was again brought out into the peritoneal cavity. One end of the suture was threaded into a curved needle and carried through a part of the muscle wall, after which the two ends of the loop were tied.

In the operation I propose I have opened the abdomen in the median line, picked up a loop of the round ligament about one and one-half inches from the angle of the uterus, passing the ligature beneath the entire ligament. Both ends of this ligature are carried by a Deschamps needle through an opening in the peritoneum anterior to the round ligament, to the parietal surface, and beneath the parietal peritoneum to a point about the outer margin of the rectus muscle, where it is carried through the abdominal wall. The two ends of the ligature drawn taut, the opening is enlarged by introducing the point of the scissors and separating them so that the ligament is thus easily brought up. After a similar procedure upon the opposite ligament, the projecting loops are fastened by sutures to the aponeurosis, the final suture being introduced in such a way as to decrease the size of the opening through which the loop has been brought. This operation holds the womb forward, affording it mobility, introduces no adhesions or extraneous material within the abdominal cavity, yet affords structures which will undergo hypertrophy and involution should the woman become pregnant. The introduction of the round ligament beneath the peritoneum requires no especial skill, as with the ordinary Deschamps needle with a slight curve, a long right-angled piece, the suture holding the round ligament is readily carried.

This operative procedure is also of advantage in cases in which there is a tendency to prolapse of the ovary and tube, as the relation of the retracted broad ligament to these organs forms a shelf upon which they are more likely to rest. It also is of service in cases of femoral hernia in that it decreases the directness of the pressure of the intestine upon the femoral opening. I have done this operation on quite a number of patients. It is too soon, however, to say anything as to the durability of the procedure beyond what would be apparent from the mechanical aspect of the operation.

ANTISTREPTOCOCCIC SERUM IN THE TREATMENT OF SMALLPOX.

A. C. Smith in the *Medical Record* of April 2, 1904, details his results obtained by this method of treatment. At the end of fourteen days the body surface was clean and smooth, covered with the superficial scars, but no pitting. The eruption was pronounced, and where the garter encircled the leg the vesicle extended entirely around.

The other medicinal treatment used was only mild laxatives of calomel and sodium bicarbonate with sponge baths of 1:4000 bichloride mercury solution, with hot bath of the same when desquamation was ripe. He used no masks nor emollient protectors, yet had no pitting, nor did they have itching to any marked degree. In these cases there was none of the general debility that followed the disease in former cases in which the treatment was by the usual drugs and antiseptic washes, though the same has been successful, as there was only one death in a series of eighty-three cases, but in most cases tedious convalescence and impaired health followed recovery. Thus by the serum treatment we have a shortening of the duration of the disease, absence of the secondary fever, lack of absorption of septic products by prevention of pus formation, no pitting, no marked debility, less suffering, and much less danger of lung and kidney involvement, with a much more rapid convalescence.

In conclusion, the writer states it is to be regretted that the profession is so slow to give the patients the benefit of these life- and suffering-saving means that science has placed at its disposal. One great mistake made in the administration of any of the serums is too long delay and insufficient quantity used. It must be used early and in sufficient quantities to command a complete neutralization of the toxins it has to counteract.

The Therapeutic Gazette

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Leading Articles.

THE TREATMENT OF HEMOPTYSIS.

Hemoptysis, or blood-spitting, is a condition which possesses very great interest not only for the medical man but for the laity as well. It is a symptom which always causes great alarm to the patient and to his friends, and is one which does not yield readily to treatment. Most of the measures which have been introduced in the past for the control of the bleeding and which have been thought to be advantageous have probably exercised but little effect, for it is difficult to conceive how hemorrhage from a blood-vessel of any size can be materially influenced by the internal administration of drugs. As we have stated before in these columns, it would seem probable that in the use of many of the remedies which have quite a reputation for this condition, the hemorrhage has ceased by coincidence rather than by any direct effect of the remedy. In instances where the blood comes from a capillary network and the flow is not free, the internal use of vaso-constrictors may be advantageous, but where a main vessel is eroded, in all probability they tend to increase hemorrhage by raising arterial tension.

With these ideas in mind we have read with a good deal of interest a paper by Mr. Milton in the *British Medical Journal* of March 19, which embodies his views developed by acting as medical superintendent of a sanatorium in Devon, England. He divides the cases of hemoptysis into three classes, namely, those occurring early in the disease as the first initial sign of pulmonary tuberculosis, and before consolidation can be demonstrated by physical signs, the hemorrhage taking place while the patient may seem in perfect health. The treatment which he advises under these circumstances is perfect rest until the hemorrhage ceases, followed by the gentlest form of exercise for a considerable period of time. He believes that gentle exercise causes the distribution of blood to other portions of the body than the lungs, and so actually diminishes the tendency to hemorrhage. This method has the additional advantage that the patient is not depressed by being confined to his bed. If, however, fever is present, then rest in bed is absolutely necessary. The amount of food should be moderate and every measure taken to regulate the system, so that the febrile process is brought to a conclusion as speedily as possible. In those instances wherein the amount of blood lost is large and the consequent weakening is great, rest in bed with a liberal diet is of course necessary. It is also important that the patient shall be cheered by the physician, who can assure him with perfect truth that patients very rarely die as the direct result of pulmonary hemorrhage.

The treatment for cases in which the physical signs of disease are better developed is practically identical.

In the third class of cases, when a cavity is present, the condition is more grave because there is an associated septic tubercular infection in the lungs, and the lesion which produces the hemorrhage is more wide-spread. Under these circumstances he strongly recommends that we diminish the activity of the heart and the respiratory activity to the lowest possible point, administering at the same time remedies which tend to lower blood-

pressure. Quiet for the heart and the nervous system can be obtained by absolute rest and seclusion, by the application of a hot-water bottle to the feet. Morphine may be given in the dose of ¼ grain, either hypodermically or by the mouth, and enough of it should be used to relieve the patient's anxiety, quiet his nervousness, diminish respiratory activity, and decrease the number of heart-beats per minute. A piece of ice placed in the mouth is also refreshing, and perhaps exercises a quieting influence. Mr. Milton doubts the advisability of applying an ice-bag to any portion of the chest. After the hemorrhage is controlled he believes that the diet should at first be light and not stimulating, consisting of raw eggs and beef, and raw beef sandwiches, gradually increased in quantity until finally a regular diet can be instituted. Alcohol is not to be used if it can be avoided. If there is evidence that the bronchial tubes are blocked by blood-clots, morphine must not be given, as it is essential that the patient empty the bronchial tubes by coughing.

Closely allied to these cases may be included a fourth class, in which the patient may be still fairly plethoric yet have a weak spot in a blood-vessel in his lung. In such instances Milton believes that blood-pressure should be lowered by full doses of magnesium sulphate, that the bowels should be moved daily by one of the saline waters, that the diet should be moderate and not stimulating, and that doses of salicylate of sodium, amounting to 30 grains a day, should be given. The exact reason for the administration of this latter drug is not clear.

Doubtless the readers of the GAZETTE, after perusing the opinions of Mr. Milton, will come to the conclusion that after all he has nothing very new or radical to suggest in the treatment of this alarming condition. We have mentioned his views because we think that they are moderate and to a large extent correct. It is well for us to recognize that we have certain limitations in therapeutics, and still more important that we remember that in endeavoring to do good we must not administer drugs which can possibly do harm. Masterly inactivity is sometimes better for the patient and physician than meddlesome therapeutics.

THE EFFECT ON NEPHRITIS OF DECAPSULATION OF THE KIDNEY.

In the THERAPEUTIC GAZETTE for January, 1904, we discussed this method of treating chronic renal disease, which was first advanced by Dr. Edebohls, of New York, and which has since been followed by a number of operators in other cities, here and in Europe. In that editorial we took the ground that the operation was not based upon clear conceptions of the physiology or pathology of the kidney function, and we quoted a statistical article compiled by Dr. Ramon Guiteras, from which he decided that chronic nephritis should not be operated upon until medical treatment had proved of no avail. Further, that operative procedure limited to one kidney was safer than that applied to both kidneys, and finally that cases which suffered from anasarca should not be operated upon.

Attention is once more called to this subject by an experimental research carried out by Dr. Hall, of Manchester, and Dr. Herheimer, of Wiesbaden, which is recorded in the *British Medical Journal* of April 9, 1904. After reminding us that Edebohls first suggested decapsulation of the kidney for chronic nephritis for the reason that improvement in some such cases followed stripping of the capsule for the fixation of a movable kidney, they speak in terms of commendation of the suggestion originally made by Mr. Reginald Harrison, namely, that puncturing the kidney capsule should be resorted to for the purpose of relieving intrarenal pressure.

The first step in their research was to determine the effect of decapsulation of the kidney in healthy animals. They quote a series of experiments made by Claude, Alberan, and others which are in accordance with their own results, to wit: that when the capsule of a kidney is removed it rapidly reforms, and at the end of ten or twenty days is represented by a fibrous covering thicker than the original capsule. Again, none of these investigators were able to detect any vascular anastomoses between the cortical and perirenal blood-vessels in dogs or rabbits, although it is true that a slightly increased vascularity of the kidney may temporarily be present. It is evident,

therefore, that decapsulation of the kidney in animals, at least, does not permanently relieve these organs from pressure. They then produced nephritis by experimental measures, endeavoring to use substances for the production of this condition which would be qualified to produce lesions as closely allied to those found in ordinary nephritis in human beings as possible. After producing such a nephritis, they proceeded to decapsulate the kidney, and they found that in these cases also the removal of the capsule was speedily followed by its regeneration, so that so short a time as eight to fourteen days after the operation the kidney was covered by a thick, strong connective tissue capsule. While they are perfectly free to admit that artificial nephritis in animals cannot be too closely compared with nephritis in human beings, the results of their research are certainly most interesting and practical in their bearing.

They conclude that decapsulation does not offer any advantages; that there exists no anatomical basis for the operation in acute degenerative nephritis; neither do they think that in chronic nephritis any better results will be obtained. On the contrary, they believe that the damage done to the surface of the kidney in the removal of the capsule would rather tend to accelerate the interstitial inflammation.

If, then, it is practically decided that removal of the capsule does not produce beneficial results, either by relieving tension or providing the kidney with a new blood-supply, how else can it possibly be advantageous? It has been thought by some that the increased circulation in the kidney which is supposed to exist after this operation depended upon some action of the sympathetic ganglia. We know so little in regard to the functions of these ganglia that any such considerations must be largely hypothetical and suppositious. But if it be true that the operation acts in this manner, then as Hall and Herheimer well point out, there is reason to believe that puncture of the kidney, or a long transverse incision of its capsule, ought to produce equally good results, and expose the patient to a less serious operation.

In conclusion they express the view that while some American and French surgeons regard the operation with favor, Israel, Nicolayson, and others have already abandoned it in chronic conditions, and we can hardly conceive that so grave an operation would be justified in acute nephritis. Finally, they quote a research carried out by Boncz-Osmolowsky, who found that in several instances after decapsulation of the kidneys the leucocytes and connective tissue were increased between the tubules, and the cells of the superficial tubules showed granular changes in their protoplasm. Later on the superficial tubules and glomeruli were slightly compressed by the connective tissue elements, and there was atrophy of the renal cells. This observer also failed to recognize any new formation between the blood-vessels of the capsule of the kidney and the renal vessels in the newly-formed capsule.

ANOTHER NOTE AS TO THE USE OF TUBERCULIN AS A DIAGNOSTIC AGENT.

In the issue of the THERAPEUTIC GAZETTE for November, 1901, and again in the issue for May, 1902, we discussed this very important matter, and as a result received several communications, some of which indorsed our rather conservative view as to the value of this agent, while others expressed the belief that we were sadly mistaken in not regarding tuberculin with more enthusiasm as a diagnostic agent; and in two instances at least physicians sent us contributions to our original columns in which they strongly advocated not only the use of tuberculin as a diagnostic agent, but also its employment for therapeutic purposes. In both editorials to which we have referred we fully recognized the importance of determining at the earliest possible moment that a patient was suffering from pulmonary tuberculosis. It is a universally recognized fact that the earlier the tubercular invasion is recognized the greater are the opportunities for its arrest and cure, and there can be no doubt that an agent which would certainly determine the question as to the presence of tubercular infection, and which would be harmless to the patient, would prove of infinite value to the medical profession. On the other hand, in

these same editorial notes we pointed out the fact that tuberculin was by no means a diagnostic agent which would give us certain results, but on the contrary it was prone, in a large number of cases, to mislead the physician, either by failing to give a reaction when the patient was really tubercular, or by giving a reaction when no tuberculosis was present, probably because syphilis or some other condition affected the result. Again, it has seemed to us that given a patient with sufficiently definite symptoms to raise a suspicion of tubercular infection, it is safer for the physician to treat that patient as if he were positive that tuberculosis was present, since the patch of impaired resonance in the lung, or the area in which roughened breathing is present, if not due to tubercular infection, is certainly pathological, and equally certainly affords a site in which the tubercle bacillus may rapidly multiply should the patient be exposed to infection. In such a patient it matters little, so far as climatic cure is concerned, whether the condition be actually tubercular or so favorable to tuberculosis that the patient's life is in jeopardy.

Finally, it may be remembered that we took the ground that in many instances it is questionable whether we are justified in causing a so-called reaction by the injection of tuberculin, and whether the patient whose vitality is already impaired should be made more ill, even temporarily, by the production of a chill, fever, and sweat.

In the two or three years which have elapsed since these editorials were written we have seen no reason to change our views, although medical journals in this country and abroad have published a very considerable number of cases in which the use of tuberculin as a diagnostic agent seemed to yield excellent results. On the other hand, other articles have been published in which it has been proved beyond all doubt that the tuberculin has misled the physician, and therefore we have read with much interest a letter published in the *Boston Medical and Surgical Journal* of March 17, 1904, written by Dr. Vincent Y. Bowditch, of Boston, who as most of our readers know is perhaps the most eminent authority on pulmonary diseases in the New England States. This letter is written in reply to one sent to the same journal by Dr. Lord, who is an ardent believer in the use of tuberculin as a means of diagnosis, although even Dr. Lord admits that the only reliable proof of pulmonary tuberculosis is the presence of tubercle bacilli in the sputum. We cannot help feeling that the attitude taken by Dr. Bowditch in regard to this matter is one which may well be followed by the majority of the profession. On the one hand he does not condemn the employment of tuberculin, yet on the other hand he does not believe in its free use, and is strongly opposed to the claim made that a patient has a true reaction unless the condition of the patient has been most carefully studied before and after the injection is given. He says that after having used tuberculin and given it up, he was persuaded to return to it by those in whom he had faith; that he tested it in patients who were under the most careful observation, and he regrets to state that he has frequently found himself in consequence of its use more in doubt than before, has discharged patients who have failed to react to the maximum dose, who later developed undoubtedly pulmonary tuberculosis, and he cites one instance of a patient who received 10 milligrammes of tuberculin without having any reaction, although a few days before tubercle bacilli were found in his sputum. Again, he finds that many patients refuse flatly to take the test.

It seems to us also that Dr. Bowditch strikes a true note when he says that he believes we are now apt to often lay stress upon laboratory evidence at the expense of clinical experience, and by so doing are not infrequently led astray. Again, whether tuberculin be used or not, and whether the patient reacts or not, he advises that we adhere to the old maxim taught him, and others, in his early career, namely: "If you find any change in the respiration or the percussion note in one or the other apex of the lung beyond the normal variation which usually exists in the right apex, if you hear a single râle in the same position, especially if accompanied by malaise, loss of flesh, slight fever, with or without cough and expectoration, watch your patient, for he is in danger." The physician who does

this will usually recognize the presence of tubercular infection early enough to do all that is necessary for his patient, even if tuberculin is not used to confirm his suspicions of infection.

THE DOSE, PURITY, AND ACTIVITY OF DRUGS.

It is not the intention of this editorial to speak once more of the necessity of the physician being careful to employ only such pharmaceutical preparations as he is sure are capable of producing a full therapeutic effect. As we have stated in the past, it is remarkable that physicians are so frequently content to use remedies of uncertain value in treating cases of disease, since so much depends both for the life of the patient and their own reputation upon the activity of their remedies. In the *Lancet* of April 9, 1904, attention is called, in an editorial, to the fact that drugs may not only give disappointing results if they are inactive, but that some of the medicinal substances derived from the mineral kingdom may be contaminated by other substances in sufficient quantity to produce undesirable effects. Years ago it was supposed that the irritation of the gastrointestinal tract which sometimes followed the use of very large doses of bismuth was due to the bismuth itself, but it was soon found out that these untoward effects were in reality dependent upon the fact that the bismuth was contaminated with arsenic. By the *Lancet* we are informed that a number of specimens of cream of tartar dispensed as medicine in England have been found to be contaminated with lead in the proportion of three-quarters of a grain to the pound, while another sample contained one-tenth of a grain of arsenic to the pound. In each instance a court held that the purveyor of such a contaminated substance was liable to punishment. In some instances these impurities probably account for what is supposed to be an idiosyncrasy on the part of the patient to a remedy, and therefore, before deciding that a patient has an idiosyncrasy to the drug, the possibility of its being impure should be carefully considered.

INFECTION OF WOUNDS FROM THE MOUTH OF THE OPERATOR OR HIS ASSISTANT.

It is commonly accepted that wound infection is due either to uncleanliness of the hands of the operator or his assistant, or to the use of ligatures which have not been subjected to sufficient sterilizing processes. The fear of air infection which at one time dominated antiseptic measures has long since passed, though the surgeon endeavors to operate in a room free from dust, and mechanically clean. Experience has taught him that, provided the methods generally adopted for the cleansing of surfaces, instruments, ligatures, and dressing material be scrupulously carried out, he need have little fear of wound infection. None the less, in the hands of the most conscientious such infection occasionally occurs. It is generally ascribed to the use of animal ligatures, and doubtless these are sometimes at fault, but a series of studies made upon expired air during phonation would seem to indicate that the source of some otherwise inexplicable infections may lie in particles of saliva carried from the mouths of the surgeon or his assistants during the course of an operation.

It has been shown that the mouth of a newly-born babe is germ-free, but that almost coincident with the first few breaths there occurs a bacterial invasion which, under ordinary conditions, is likely to last through life. Though it has been demonstrated that the expired air is as a rule more free from bacteria than that which is breathed in, it has also been shown that coughing, sneezing, laughing, or talking necessarily involves the expulsion of minute particles of saliva which are practically always loaded with germs. Many persons habitually thus throw off such particles of saliva to such an extent as to make a close-quarter conversation with them unpleasant. Even those not thus affected can demonstrate in part at least the extent to which such infected particles of moisture are thrown into the atmosphere, by standing in front of a clear mirror at a distance of one or two feet, and speaking in an ordinary tone against it. In addition to such microscopic particles of moisture, there are, of course, myriads of smaller particles which

escape observation, but which, none the less, are capable of carrying infection.

De Leon *(Archiv für Klinische Chirurgie,* 72 Band, 4 Heft), after quoting at length from the extensive literature upon this subject, including the bacteriology of saliva, and demonstrating the frequency with which staphylococci and streptococci are found therein, conducted a number of observations with agar plates carefully protected against ordinary air infection, and removed at about the distance from the mouth of the operator that a wound would be during the course of an operation. The words spoken against this plate were those customarily employed in an operation. Control plates were similarly arranged. It was noted in all cases that streptococci, staphylococci, and sarcinæ were present on the plates against which the words had been spoken. Streptococci were, as a rule, the dominant microöragnisms.

A careful computation led De Leon to conclude that in speaking 300 words, 250,000 microörganisms were cast off in minute particles of saliva.

The result of a great many investigations showed that the average number of colonies growing on an agar plate after 140 words had been spoken was 60, and that as a rule the majority of these colonies were made up of streptococci. As a means of preventing this form of infection it has long since been urged that speech during operation should be limited. Even the few words absolutely necessary implies the ejection of thousands of germs.

There are two methods suggested as possibly effective in preventing this form of infection. The first, and perhaps the simplest, lies in thorough disinfection of the mouth, so planned and carried out that the pathogenic germs lying in this orifice are entirely destroyed. The second method consists in the wearing of some form of apparatus which will catch the drops of saliva that are the carriers of these germs, thus preventing them from reaching the wound surface.

As to mouth disinfection, Miller advised a mixture of saccharin, benzoic acid, tincture of ratanh., oil of peppermint, and oil of cinnamon, which rendered the saliva from the mouth washed out with this preparation innocuous to mice. Montefusco was unsuccessful with his mouth-wash. Pelnar, Rose, Archinard, and others were unable to accomplish thorough mouth disinfection with a variety of antiseptics employed. Koerner demonstrated, however, that the use of tobacco cut down the mouth organisms one-half.

De Leon experimented with the wash suggested by Miller, and found to his astonishment a marked increase in the number of streptococci colonies developed after his experimental tests. This he attributes to the increased flow of saliva induced by the mouth-wash. He became quite convinced that the use of antiseptics for cleansing the mouth was perfectly futile, in so far as preventing infection from this source was concerned. Experiments were thereupon made with gauze masks. In spite of the use of these, colonies still developed on agar plates toward which speech had been directed.

An apparatus was then designed to contain a pledget of absorbent cotton. This was fitted over the mouth in such a way that it was comfortable and did not interfere with speech. The apparatus, somewhat like an inhaler, was fastened behind the ears with a pair of spectacle bands. Its use was entirely satisfactory. In the test with the plates not a single streptococcus or staphylococcus developed. One or two plates showed colonies, but usually they remained sterile. Perhaps inspired by his enthusiasm, De Leon notes that he has employed this apparatus in long operations without the slightest inconvenience.

It would seem that an easy solution of the difficulty would lie in maintaining absolute silence during an operation; as DeLeon points out, this is not practicable. By careful observation of the most taciturn operators, it has been discovered that during the course of a prolonged operation an extraordinary number of words are used. It is, of course, not necessary to direct these words toward the wound; none the less, in the course of an operation, with the mind centered upon the work, the tendency is to speak in this direction. As a rule one particle of saliva gains access to a wound for every word spoken, and each drop contains 5000 microörganisms.

This being the case, perhaps the

source of greatest surprise is that primary union is ever obtained, since the dominating organisms of the saliva are those most dreaded by the surgeon.

The careful washing of the hands, the use of antiseptics upon them, and finally the employment of rubber gloves, procedures now universal, were at one time regarded as absurdities, or at least as unnecessary adjuncts of a surgical operation, by the bulk of practitioners. In the light of papers such as De Leon's, and there have been many such, it seems likely that the operator will in future don, in addition to his sterile gown and rubber gloves, a mouth muzzle of such structure as will prevent infection of the patient from the surgeon's saliva.

TETANUS IN THE GERMAN ARMY.

Tetanus, at one time common enough after wounds inflicted during military operations both in time of peace and war, has, thanks to the hygienic precautions now generally adopted, become a comparatively rare affection. None the less, 96 cases are reported in the German army as occurring during the last twenty years.

At one time there seemed to be good reason to hope that a specific had been found against this disease in the use of antitoxin. Those who have carefully followed the literature on this subject fail, however, to find any convincing proof that such a hope has in any way been realized. It is true that successful cases are reported, but with almost no exception these cases belong to the type in which spontaneous cure is common. In the German army, 25 cases of tetanus were subjected to antitoxin treatment, 10 of which were cured (that is, 40 per cent), whilst of the 71 treated without antitoxin 21 were cured (31 per cent). This shows slightly in favor of antitoxin, but the percentage is such a small one as to be quite inconclusive. There seems, however, to be a growing sentiment in favor of the value of antitoxin as an immunizing agent. Herhold used it in a systematic way during the Chinese campaign; and he suggests that in future it may become a necessary part of the medical stores of every army.

The most striking feature in regard to the development of tetanus in military life is incident to the fact that it is most frequent from wounds due to the explosion of blank cartridges, and that it appears, under such circumstances, in a particularly virulent form, the mortality being 80 per cent.

Talayrach (*Archives de Médecine et de Pharmacie Militaires,* March, 1904) calls attention to the well known fact that toxic infection from the tetanus bacillus usually is dependent on a large number of spores and greatly depressed local vitality of the tissues. This lessened cell resistance is realized very completely in wounds caused by blank cartridges, also to a certain extent by injuries due to projectiles, though it is a remarkable fact that there have been no cases of tetanus in the German army following ordinary gunshot wounds for the last twenty years. They have occurred frequently enough from the trauma following blank cartridge wounds.

A natural inference, in contrasting these figures, is that the disease must be due to the entrance of germs carried by some portion of the cartridge, hence the wads and all other portions were subjected to most careful laboratory research. Musehold, of Strasburg, was able to isolate the tetanus bacillus in over 50 per cent of the cartridges examined. These results were corroborated by Losener and Bischoff.

In such close-range wounds it is obvious that fragments of the wads will be blown into them, thus producing conditions peculiarly favorable to the growth of the tetanus bacillus. It was noted, in following the manufacture of the cartridges, that there was no part of the process which could reasonably be expected to destroy the germs. Bischoff, by quantitative estimate, calculated that one gramme of the cartridge shell furnished not only a large quantity of tetanus bacilli, but from eight to nine million aerobes, among which were staphylococci, colon bacilli, proteus, and bacilli of charbon, which were not pathogenic to animals.

This research is in line with the experience of the American youth at Fourth of July celebrations. The number of cases of tetanus following wounds inflicted by blank cartridges, though never really

great, was sufficiently shocking to lead to a careful investigation as to the causes, these being recognized as lessened cell resistance from the nature of the wound, and the introduction of foreign bodies, the fragments of the cartridges carrying direct infection.

The prophylaxis is easy enough. It should consist, of course, in seeing that the material from which these cartridges are made should be subjected to adequate sterilizing processes. Heat beyond the boiling point, maintained for a few minutes, is absolutely efficient.

Reports on Therapeutic Progress

THE TREATMENT OF PNEUMONIA.

This always interesting theme receives attention once more in an editorial note in the *Archives of Pediatrics* for February, 1904. In this note we are told that the discussion on pneumonia in children at the recent meeting of the Section on Pediatrics of the New York Academy of Medicine brought out some discordant opinions in regard to methods of treatment, but showed an essential community of practice as concerns the principles supposed to be applied. Lobar pneumonia in children is so seldom a fatal disease and is so distinctly self-limited, with a tendency to complete cure, that the most important lesson with regard to its treatment is *non nocere*—that is, be sure to do no harm. Meddlesome therapeutics has been responsible for the loss of many lives. Digitalis is apt to disorder the stomach; expectorants of any kind are almost sure to be sources of gastrointestinal irritation, and even strychnine and whiskey by the stomach are so likely to do harm rather than good that they can only be employed when there is an absolute indication for them. Only near the crisis, and in feeble children when the heart becomes irregular, is it safe to use these remedies. Even then the suggestion that whiskey well diluted shall be given by the rectum rather than by the mouth seems good, while strychnine should often be administered hypodermically.

In all cases the one feature of the patient's condition demanding the physician's constant attention is the gastrointestinal tract. If meteorism occurs, the prognosis of the pneumonia may become rapidly serious. The interference with respiration and with the heart action in the child's weakened condition will surely reduce the strength so that the crisis may not be passed successfully. It is important that the food should be limited mainly by dilution and comminution, though it is equally important that plenty of liquids should be furnished to the child. The fever drives off a large amount of moisture, and this must be compensated for, else the blood becomes less fluid, the circulation, already hampered, more difficult, and the oxidation processes, already diminished by the limitation of the respiratory function, fall still further below what is necessary for normal vitality. The child must always be tempted with water rather than milk, since many a little patient has taken too much milk in the effort to satisfy his thirst. At the beginning of a pneumonia small amounts of calomel and a full dose of castor oil are employed with advantage. Subsequently the bowels must be carefully watched, and if twenty-four hours pass without a movement an irrigation or a saline cathartic must be given without fail.

Another condition that may demand active treatment in lobar pneumonia in children is high temperature, if accompanied by nervous symptoms. The main purpose of the antipyresis should be not the reduction of the temperature, but the relief of the hyperesthesia, the restlessness, and the loss of sleep. Many children, as the result apparently of the deficient oxidation processes in the body, stand the high temperatures very well, particularly during pneumonia. This is quite different from what usually obtains in children in other diseases. Where a temperature of 104°F. causes no restlessness or serious nervous symptoms, only the mildest means should be used to reduce the temperature. Coal-tar products must not be employed unless in the smallest doses. Occasionally quinine, in divided doses, not more than three to eight grains per day, according to the age of the patient, will be found of service.

Hydrotherapy must be the mainstay of the physician when high temperature is causing serious restlessness. The trunk

should be wrapped in a Turkish towel that has been wrung out of water at a temperature not lower than 80° so as to produce no shock, and then water is sprinkled on the towel from time to time, the temperature of this water being gradually lowered; but the treatment must never be continued when the little patient's temperature has fallen below 101° F. The arms and legs must not be included in the wet pack, or the result will almost surely be harmful rather than beneficial.

The treatment of bronchopneumonia constitutes a much more difficult problem than that of lobar pneumonia. The disease lasts longer and the patient's nutrition must be kept up at all costs. The limitation of food which is advisable in lobar pneumonia cannot and should not be maintained in this form of the disease beyond the first few days. From the beginning, then, care must be taken to supply sufficient nourishment of the most digestible kind. The use of predigested foods here becomes important. Their employment must not be delayed until the little patient begins to show signs of weakness. In most cases counter-irritation by mustard plasters applied for a few minutes several times a day is advisable, especially when the cough is hard or when there is distress. Inhalations of vaporized benzoin or creosote, or of an atmosphere saturated with steam, are of particular value when there is cyanosis due to scanty secretion and contracted bronchioles. Oxygen inhalations are frequently life-saving, but the oxygen must be used early and freely until the effect desired is produced. As in lobar pneumonia the use of such stimulants as strychnine and whiskey by the bowel are advisable, if the little patient has shown signs of a sensitive stomach.

Just as with adults suffering from pneumonia the prognosis of the disease depends not so much upon the amount of lung involved as on the condition of the patient's health at the beginning of the attack, so with children, if there has been any previous inflammation of heart, or lungs, or kidneys, or if anemia is present, the prognosis is rendered distinctly worse. Pneumonia is not a lung affection producing general symptoms, but a constitutional ailment having its favorite point of attack in the lungs. The micoörganisms of the disease are now known to be in the circulation, and must be eliminated by the kidney. Any kidney insufficiency made manifest by the occurrence of albuminuria early in the attack is a bad sign and must be considered as portending a severe attack in most cases. Where such complications are discovered to exist, the ordinary expectant symptomatic treatment must give way to more active measures earlier in the case, but with due care not to overdo medication. The function of the skin must be kept active by hydrotherapy, and the work of the heart lessened by the use of nitroglycerin. No general directions can be given, however; the treatment will be helpful only inasmuch as it meets the indications of the individual case.

COCAINE AND ADRENALIN INJECTIONS AS AN ASSISTANT IN GENERAL ANESTHESIA.

ROBERTSON states in the *Northwestern Lancet* of April 1, 1904, that many times when we are giving an anesthetic and think that we have our patient profoundly under the influence of the drug, we find, upon making a preliminary incision, that the skin is still very sensitive, that it requires more chloroform or ether to produce the required anesthesia, and we are obliged to give a great deal more of an anesthetic than we think good for our patient. The writer injects, after Schleich's method, the skin and muscular tissue with a one-half per cent solution of cocaine hydrochlorate containing from one to two drachms of adrenalin to the ounce. This solution will produce the required anesthesia of the skin, and lessen the amount of chloroform or ether required; in fact it will require only about one-half the usual amount—just enough to keep the patient quiet. The writer finds this a great help, and thinks it can be used with advantage in many cases. The adrenalin bleaches the skin and underlying muscular tissue so that there will be no capillary hemorrhage.

In operations for appendicitis and hernia, where it is necessary for the operator to be particular about the dissection, it has a very great advantage, as the different layers of fascia and muscle can be plainly seen and the operation made as easily as on a cadaver.

Objections have been raised to this method by surgeons holding that general anesthesia should not be tried at the same time with cocaine injections, claiming that it is decidedly dangerous to administer the two at the same time. This, however, has not been the writer's experience. He has never seen any ill effects from the use of cocaine under any conditions.

Dr. J. Clarence Webster, of Chicago, reports in the August number of the *Journal of Obstetrics and Gynecology* the removal of an eighty-seven pound cystic fibromyoma of the uterus, which required two and one-half hours for its removal, and the first hour of the operation was with local anesthesia (Schleich's method), followed by a general anesthetic for an hour and a half longer.

The writer has used cocaine in old and young, in patients with dilated heart suffering with chronic nephritis, in nervous, hysterical persons, and fat people, and he has never seen any bad symptoms which he could attribute to cocaine.

The advantages are (1) less chloroform; (2) less pain; (3) less capillary hemorrhage; and (4) a better view of the parts operated upon.

BLACKWATER FEVER.

Editorially the *Medical Record* has the following to say about this subject, which has been discussed in our columns so much in times past: An editorial in the *Journal of the Royal British Medical Corps* for March treats of blackwater fever, with reference to researches recently carried out by Messrs. Daniels, Christopher, and Stephens, in which several interesting points regarding this deadly complaint are mentioned. Attention is drawn to the fact, as regards its geographical distribution, that where blackwater fever occurs malaria, and usually the so-called tropical variety, is also endemic. The white race is peculiarly susceptible to the disease. Daniels defines the malady as "an acute hemolysis of sudden onset, short duration, and spontaneous cessation." He also thinks that the death-rate has been overstated; from his own observations he puts it down at somewhat over 20 per cent. The three main causes are suppression of urine, cardiac failure, and hyperpyrexia. The same writer, referring to treatment, states that in his opinion unless malarial parasites are found quinine should not be given. Sternberg's treatment for yellow fever (frequent doses of bicarbonate of soda and minute quantities of perchloride of mercury) seemed to yield good results.

As to the etiology of hemoglobinuria, although the view is generally accepted that there is some connection between malaria and blackwater fever, the exact relationship has not yet been quite satisfactorily determined. Daniels points out that in British Central Africa, and in West Africa, similar anopheles are found, and these are not found in other countries. He suggests that possibly the different hosts may in some way modify the parasite.

Respecting the relation of the disease to quinine, Daniels notes that cases occur in which no quinine has been taken, that there is no relation between the time at which the quinine is taken and the onset of the disease, nor between the quantity taken and the severity and duration of the attack.

Christopher and Stephens made some observations on the tonicity of the blood in blackwater fever and malaria. Their results showed that the blood in blackwater fever has a low tonicity—*i.e.*, is resistant to hemolysis—which they think may be explained by assuming that all the high tonicity corpuscles have already been destroyed. In malarial subjects there is usually a high tonicity. The blood of convalescents from blackwater fever resembles that of convalescents from malaria. The native's blood frequently showed a remarkably low tonicity. Hemoglobinuric urine and serum from a hemoglobinuric patient had no hemolytic action on the observer's blood. *In vitro* no difference could be detected between the patient's and the investigator's bloods as regards the solvent action of solution of quinine. The investigators suggest the possibility of the lethal action of quinine on the parasites setting free a large quantity of toxins and so causing the blackwater special parasite. Up to the present, however, no one has found any parasite special to the disease.

The views of Daniels, Christopher, and Stephens, respecting the connection between blackwater fever and quinine, conflict with those of Koch and some other observers. There is, however, ample reason to believe that the conclusions arrived at by the British investigators are entitled to as much consideration as those of Professor Koch and his followers.

TREATMENT OF OZENA.

IGNAZIO DIONISIO describes (*Gazzetta Medica Italiano,* Jan. 28 and Feb. 4) his modification, for the purpose of treating ozena, of Finsen's treatment. In a preliminary discussion of the nature and customary treatment of ozena he adopts the hypothesis that the disease is a trophoneurosis, causing atrophy of the mucosa and the bones of the nose, and the characteristic change in the secretion, which loses its bactericidal power, is deficient in water, and easily dries up into crusts. He denies the possibility of cure by cleansing and antiseptic irritations, though they are essential to the patient's comfort, and in many cases their application suffices to destroy all fetor as long as they are regularly used. He has also obtained good results, but not cure, from vibration treatment, which stimulates the circulation and the glandular secretions. He disapproves of all the methods of treatment which involve any destruction of mucous or other tissues, on the ground that the disease quickly spreads again, and involves the whole area within the nose. The chief modifications introduced into Finsen's treatment by the author are that he produces anemia of the tissues by cocaine and adrenalin rather than by pressure, and that instead of operating on a small area at a time he projects the rays freely into the nose, and thus treats a large area at once. His apparatus consists of an arc lamp of 300-candlepower, surrounded by a glass screen containing water in circulation, to intercept the calorific rays. Each application of the ray lasts two hours, and the author has been in the habit of considering 200 sittings necessary for the cure of a severe case, and 40 sittings for a mild case—that is, one in which the characteristic fetor is absent, when irrigation is regularly carried out once a day. But since the technique of the method has been improved the necessary course of treatment is not so long. Notes are given of 11 cases treated, though others have been treated in the same way and invariably with good results. In nearly all the cases it is stated that the fetor has disappeared, and in most it is found that the cure is maintained since the treatment has been discontinued, usually several months or a year. The improvement is not confined to the more accessible parts of the nose. The sense of smell, previously lost, has in many cases been recovered. The author claims that there is a real *restitutio ad integrum,* and that after a sufficiently long course of treatment normal conditions are restored in every case, other forms of treatment, such as irrigation, becoming unnecessary.

Since these good results have been obtained, Casassa has investigated the action of light on the micoörganisms most commonly found in cases of ozena, but its influence on the nutrition of the tissues is still unexplained, for the author does not in any way accept the theory that the microörganisms are the cause of the ozena. The author has employed the same means of treatment for cases of suppurative otitis media which did not yield to ordinary remedies. The results obtained have been good and more rapid than in cases of ozena.—*British Medical Journal,* March 26, 1904.

THE LIMITATIONS OF CHEMISTRY IN INFANT FEEDING.

A practical pediatrist, Dr. CHAPIN, while recognizing the value of percentage feeding of children, nevertheless puts in a plea for the adaptability of the child to its food in the *New York Medical Journal* of April 23, 1904. He says the most expert investigators into the problems of animal nutrition have found that the peculiarities of the species and individual must be carefully considered, or good results in feeding cannot be obtained. After finding what kind of food is best suited to the animal's appetite and digestion, chemistry steps in and aids in determining the quantities necessary to maintain the animal or enable proper

growth to be made. Such investigations have shown that there are minimum quantities of different kinds of foods, which are absolutely necessary for the well-being of any particular animal or species of animal, and a chemical analysis, which shows the general composition of an animal's food and what ingredient is deficient in quantity, will often be of great value in explaining lack of proper development or failure to do well. In practice there is little call for frequent analysis of food; after the minimum food quantities have been determined for a particular species of animal, a general knowledge of the composition of foods and a rough method of calculating the nutritive value of the food that is being eaten is about all that is necessary. Each animal must be fed according to its peculiarities.

In infant feeding it has been found by experience that milk must be the basis of the food, as milk develops the digestive tract. It has also been found that cow's milk diluted more than three times is not a safe food for continuous use for infants, as it does not contain enough proteid or tissue-building material. Diluted sweetened condensed milk has the same defect. It has also been found by experience that infants require from two to four per cent of fat and four to six per cent of carbohydrates, along with tissue-builders, to insure proper growth. As no absolutely exact amounts are necessary, chemical analyses of food are only of general value in establishing the range of safety in feeding. It is well known that some animals and persons thrive on a quantity of food that other persons or animals would starve on. In other words, some persons, or animals, appropriate their food to better advantage than others. The successful feeder is the one who gets the infant to taking some suitable food, and then adjusts the ingredients so that they are in sufficient quantity to carry on the normal changes that take place in the body and allow storage of tissue other than fat, and at the same time produce proper functional development.

In a few words, the object of this paper is not to disparage chemical analysis of foods, which is of great importance, but rather to show that food chemistry has limitations in practical feeding; also that the chemical teachings of a few years ago are not the same as those of to-day. If the whole basis of the teaching of infant feeding should be chemical, then the principles taught have frequently been wrong, as it is now known that some of these principles have been erroneous. Cow's milk and human milk have been analyzed many times, but the advances in infant feeding have come not so much from these analyses as from clinical and physiological experiments with cow's milk, altered or modified in other ways than by simple quantitative adjustment of the component parts. The advances made have been greater along the line of physiological requirements than from exclusive chemical studies. If chemical composition alone is to be considered, cellulose (paper), $C_6H_{10}O_5$, should be as good a food as starch, $C_6H_{10}O_5$; cane sugar, $C_{12}H_{22}O_{11}$, always interchangeable with milk-sugar, $C_{12}H_{22}O_{11}$; and all caseins should act exactly alike. Jordan well states the problem when he says: "A ration may be chemically right, but practically wrong, but at the same time it is worth much to the feeder to be assured that the nutrients which he supplies to his animals will meet their physiological needs." This principle applies to infants as well as to the lower animals.

SOME GENERAL CONSIDERATIONS ON THE TREATMENT OF TYPHOID FEVER.

In the *New York Medical Journal* of April 23, 1904, MANGES states that in his opinion in the early period of a case of typhoid fever, no stimulants are needed. As the pulse-rate rises and as the patient becomes more apathetic and somnolent, then the need for them is more apparent. The rational use of hydriatic measures is a most powerful stimulant, and when the bath or pack is preceded by whiskey and followed by hot food they leave little to be desired. Should more powerful measures be needed, then caffeine in proper doses should be employed; its combined stimulating effects upon the cerebrum and the circulation are not sufficiently appreciated by most physicians. A sinking of the blood-pressure and failing circulation demand in addition that strophanthus or sparteine or camphor shall be used hypodermically in full doses and at short intervals. To give them by mouth is to drown these fractions of a

grain in the quarts of liquid which are stagnating in these non-absorbing and atonic stomachs; they might as well be given by absent treatment. There is an art in the successful use of stimulants in these desperate cases; the practical rule is: Do not give stimulants of this type until they are actually needed, and when you do use them, give them in such a way that they are actually absorbed, and give them at frequent intervals and in such rotation that a constant and prolonged effect is obtained. The intelligent and ever alert members of the house staffs of our hospitals, who have these cases under constant supervision, could give points to many a much older practitioner. The successive house physicians at the Mt. Sinai Hospital saved case after case by judicious and proper stimulation. Many a pauper in the hospital ward has received treatment which the millionaire in his palace has hoped to secure in vain. The objection may be raised that overstimulation might occur. This objection is perfectly valid, and must be borne in mind.

Surprise may possibly be experienced that no mention is made in this paper of strychnine or digitalis. As a routine drug the author considers strychnine a danger in typhoid fever. Some years ago he had the exceptional experience of seeing a very severe case of typhoid fever in a young man who in the late stages of his disease developed the arched back, the trismus, etc., which are so characteristic of tetanus. This ordeal he survived only to die of a perforation. As strychnine had been very sparingly used in this case, it was natural to look for some other cause. This was not hard to find, since the early exaltation of the deep reflexes, the subsultus, etc., only too plainly indicate that in many cases the action of the typhoid toxin on the nervous system is closely allied to that of strychnine. Why, then, use a drug whose physiological action is such that it must intensify some of the effects of the toxins which are produced by the disease germs in question? This restriction of its use is not meant to be applicable to all cases, since, as is well known, the effects of the typhotoxins on the nervous system are not the same in all cases. The rule the author follows is very simple, namely, when the patellar reflexes are exaggerated in typhoid fever, never use strychnine. If they are normal or diminished, as sometimes occurs, he does not hesitate to use it, if other stimulants have not been satisfactory.

For analogous reasons he rarely uses digitalis, since the slow inhibited pulse which is so characteristic of the disease has seemed to indicate that better results might be obtained from other sources. Then, too, the grave myocardial changes which occur in typhoid fever hardly offer a good indication for the free use of digitalis.

CURABILITY OF EPILEPSY.

In the *Clinical Journal* of April 20, 1904, TURNER after a consideration of the prognosis of epilepsy refers briefly to its treatment by the bromides. Whether the treatment with bromides is in every case the proper treatment is another matter, and one which he does not enter upon on the present occasion. But it has come to be largely a matter of convention to treat every case of epilepsy with the bromides. The author is in the habit of treating each case of epilepsy at the commencement with the bromide of potassium or sodium. In many cases this treatment turns out a success; in some cases it is an utter failure. But, on the general plan of treating epilepsy by means of the bromides, he makes the following remarks:

First, do not give too large a dose of the drug. By large doses of bromide he means 90 to 120 grains a day. If bromide is going to be beneficial it will influence the disease in doses of 30 to 45 grains per diem. If the case does not do well on that dose it probably will not do well at all.

Secondly, should bromide be administered in doses three times a day, or in a dose once daily? The majority of cases should be given one dose at bedtime. More especially should this be the line of treatment if the case is one of nocturnal epilepsy or of fits recurring in the early morning. If a case has fits during the late evening or shortly after going to bed, give the medicine at about five or six o'clock in the evening. If in any case a definite periodicity is found, forestall the onset by a large dose of bromide, and satisfactory results are likely to ensue.

Thirdly, for how long should we con-

tinue the administration of the bromides? Some say until we have arrested or ameliorated the frequency of the seizures. There is no greater mistake. If the fits are arrested for some months, the case is most likely to be benefited by a continuance of the drug; therefore continue the bromide indefinitely, in moderate doses. Daily doses of 30 grains of potassium bromide may be given for many years without ill effects. Some cases attending at the hospital have taken bromide for over twenty years.

Fourthly, should the bromide administration be stopped in a case in which the disease has become arrested? Some epileptics take the matter into their own hands, and on their own initiative stop the bromide treatment. If the question is put whether it is advisable to stop the drug, we must be guided by the facts in individual cases. The author prefers to continue the bromide indefinitely. If the bromide is stopped some symptom, such as vertigo, will probably arise in the course of weeks or months to make the patient think that he is going to have another fit. As a matter of fact, the majority of patients with arrested epilepsy prefer to continue their medicine. That is why there are cases of from fifteen to twenty or more years' duration coming to the hospital regularly to receive their bromide.

THE USE OF ETHYL CHLORIDE AS A GENERAL ANESTHETIC IN GYNECOLOGY.

The *Journal of the American Medical Association* of April 2, 1904, contains an article by MONTGOMERY and BLAND describing their plan of using this drug.

A cone made of ordinary cardboard covered with gauze, with its base so constructed as to fit snugly over the face of the patient, has proved of good service. Several layers of gauze are secured over the opening, on to which the anesthetic is to be sprayed. A rapid evaporation or escape of the anesthetic is prevented or minimized by placing a gauze pad over this. In administering ethyl chloride for the purpose of securing general narcosis, the patient should be prepared as is done for the administration of any general anesthetic. The cone is applied tightly over the patient's face in order to prevent excessive intake of air. The patient is then instructed to breathe naturally. The agent is sprayed on to the cone more or less constantly from a tube with an opening sufficiently large to allow the rapid escape of the agent on to the cone. Should this not occur, and if anesthesia is not promptly effected, two tubes should be used.

The time required for complete anesthesia is usually from one-half to two minutes, but with some persons a longer time is sometimes necessary. The authors state that they have never failed to secure operative anesthesia, though in a certain number of cases relaxation was more marked than in others. Most observers assert that complete muscular relaxation is never obtained, and this statement is believed in the main to be correct, though in the series of cases they noted in a few instances narcosis equivalent to complete relaxation. Lotheissen asserts that in cases of incomplete relaxation the previous hypodermic administration of heroin would readily overcome the condition. It is asserted that excitement sometimes results from the administration of ethyl chloride, and this condition McCardie says is due to the too free admission of air, though at the same time a certain amount of air must be allowed in all cases.

Thus far the teaching has been that ethyl chloride finds its true service in the domain of minor surgery, or in that class of cases where prolonged anesthesia is not required, and many observers claim that it is of decided advantage preliminary to the administration of ether. A few men have used the drug for various major operations, and report having had patients under its influence for many minutes. The writers have employed ethyl chloride for almost every condition indicating the use of a general anesthetic. They have used it prior to the administration of ether, and heartily concur with the opinion of many men that the agent rapidly overcomes the excitation that results from the first stage of ether narcosis. Further, it undoubtedly decreases the amount of ether required, and therefore to a certain extent combats the post-etherization nausea and vomiting. They have had patients under the influence of the anesthetic as long as fifty-four minutes, and under

its influence have performed hysterectomy and the various combined operations on the pelvic floor and intrapelvic viscera.

In gynecologic work ethyl chloride will be especially employed to allay the pain and relieve muscular contraction in abdominal pelvic examinations. Its employment will frequently permit of an accurate diagnosis in what would otherwise be an obscure case. The short time required for anesthesia, the rapidity with which the patient will recover from its effects, and the decreased tendency to nausea and vomiting, will allow its employment in office practice, with the assurance that the patient can return home without the need of prolonged attention.

The same indications will lead to its employment in all operations of minor character where prolonged anesthesia will not be required. In enfeebled patients requiring vaginal incision for pelvic drainage it is an ideal agent, for its administration need not be begun until everything is prepared for the incision, so that the patient will be under its influence only a few minutes.

Probably its most effective employment will be as a preliminary to the administration of ether or chloroform, by which the distress and sensation of asphyxia produced by the latter agents will be avoided. A nervous woman may be brought quickly under the influence of the ethyl chloride, and the ether or chloroform follow without the patient experiencing any of the ordinary discomfort of an anesthetic, and consequently without a struggle. Her convalescence from the effects of the anesthetic is more rapid because she has not undergone so thorough a saturation with it.

The principal disadvantages of the agent as a general anesthetic are:

1. The patient passes under and out of its influence so quickly that the administrator must be unusually expert to avoid, on the one hand, profound anesthesia, and on the other the emergence from its effects at an important stage of the operative procedure.

2. The expense of the drug excludes its use in a general clinic, but the increased employment of this agent which must necessarily follow the general recognition of its advantages will doubtless resut in a reduction of its cost.

In the *Bristol Medico-Chirurgical Journal* for March, 1904, WHITEFORD states that when the anesthesia has to be prolonged he usually passes from ethyl chloride to ether, which is placed beforehand in the body of the inhaler with the indicator at 0. Breaths of air must be given according to the color of the patient while the indicator is being rapidly advanced to between 2 and 3. The transition from ethyl chloride to ether is much easier and less liable to be marked by partial return of consciousness than is the transition from nitrous oxide to ether.

If chloroform is necessary from the nature of the operations, he either changes from ethyl chloride to ether and from ether to chloroform, or passes from ethyl chloride direct to chloroform, commencing with chloroform in the body of the inhaler, the indicator being at 0, and as soon as ethyl chloride anesthesia has been induced removes the bag and gradually advances the indicator to 1 or 1½, according to the state of the patient.

Working with nitrous oxide at six shillings per 100 gallons and allowing seven gallons for each patient, one nitrous oxide anesthesia costs 5.13 pence (about 10 cents), and with ethyl chloride refills at two shillings (50 cents), and ninepence per fifty cubic centimeters, one ethyl chloride anesthesia costs 4.71 pence—a difference in favor of ethyl chloride of .42 of a penny, or three shillings and sixpence (87 cents) on each hundred administrations.

No drug sufficiently powerful to produce unconsciousness can be absolutely free from risk. Luke says: "Seitz alone has published records of 12,500 cases with only one death. In all the fatalities which have occurred under ethyl chloride—and there are only four or five cases on record—the patient has been suffering from some grave cardiac or respiratory disability," and as Dr. Hewitt puts it in the September number of the *British Dental Journal*, we are now entitled to consider that "ethyl chloride is a comparatively safe anesthetic, as safe, all things considered, as ether. The author estimates the mortality at something between 1 in 10,000 and 1 in 15,000; but of course, as with all anesthetics, much depends on the experience of the administrator;" and Dr.

Hewitt later says: "Employed in its own sphere, namely, for inducing anesthesia only prior to ether or chloroform, and for brief dental or throat operations, ethyl chloride is undoubtedly very much safer and more convenient than chloroform."

Ethyl chloride, given for short operations, produces an anesthesia which lasts for more than twice as long as that of nitrous oxide. In short dental operations, ethyl chloride, by producing muscular relaxation, does away with the preliminary gagging, which to many patients is the most objectionable part of nitrous oxide anesthesia.

From its portability and power of rapidly inducing a general anesthesia, which is followed by quick recovery and slight after-effects, ethyl chloride bids fair to come into general use, especially in private and country practice, and as a preliminary to ether or chloroform appears likely to largely supersede nitrous oxide.

THE VALUE OF DIGITALIS IN SHOCK AND COLLAPSE.

CRILE, of Cleveland, in *American Medicine* of April 23, 1904, made a series of experiments in regard to the value of digitalis in shock.

In these experiments the fluid extract, the tincture, and digitalin were used. In the normal animal therapeutic doses of digitalis, intravenously administered, caused a rise in the blood-pressure. The rise began after a latent period of half a minute to several minutes, and gradually increased until the maximum was reached. The maximum was well sustained for a considerable time. The pressure finally assumed about its previous level. During the ascent, the continuation, and the descent the curve was usually even; the length of the pulse wave was usually increased; the heart's action was considerably increased in force and appreciably diminished in frequency. When given in larger doses or when smaller doses were repeated beyond therapeutic limits, the blood-pressure rose higher and more abruptly. The heart at first beat with greatly increased force and diminished frequency. The intermissions which were sometimes noted were usually the first symptoms of a cardiac breakdown. The latter was manifested by slow, powerful beats, followed by a varying number of rapid, weaker contractions, making an irregular blood-pressure curve. If the overstimulation fell short of a fatal breakdown, the intervals of alteration between the slow, powerful contractions and the rapid, weaker ones increased, later only intermissions appearing; finally the normal rhythm was reëstablished. In the experiments in which the overstimulation reached the fatal breakdown, the alterations became more marked and the heart suddenly stopped. The force of the contractions in some instances was so much increased as to raise the thoracic wall and even shake the entire animal. In the experiments in which both vagi and accelerators had been previously severed, the effects were not so marked. In careful measurements of twenty-eight experiments on single doses, the mean rise in the blood-pressure was 8 millimeters. In animals reduced to varying degrees of surgical shock, digitalis usually caused a rise in the blood-pressure. When the animal was reduced to such a degree of shock that burning the paw or stimulating the sciatic nerve caused no rise in the blood-pressure, digitalis caused a slight, if any, rise. The highest rise was 10 millimeters.

When overstimulation was obtained by administering too large a single dose, or by repeating smaller doses, the heart became extremely irregular, or the animal died suddenly from cardiac failure. In some instances convulsions occurred.

The respiration, when at all affected, was either impaired or arrested. Death in the digitalis experiments, even in those in which the dosage was only therapeutic, was usually more sudden than in the controls. Although the data do not permit positive statements, it seemed, on the average, that in cases of shock the animal treated by digitalis did not live so long as the controls. It may certainly be stated that they did not live longer than the controls. In the experiments in which the medulla was cocainized and those in which the cord was severed just below the medulla, digitalis caused a distinct rise in the blood-pressure. When the heart had ceased to beat, digitalis introduced by intravenous infusion or by direct injection into the chambers

or the walls of the heart did not produce any appreciable effect. The animals showed considerable idiosyncrasy in their reaction to digitalis.

A PLEA FOR ASEPTIC MIDWIFERY IN GENERAL PRACTICE.

The *Practitioner* for April, 1904, contains an article by COOPER with this title. It reminds us that the first point in aseptic technique is the antiseptic toilet of the obstetrician and nurse. The obstetrician's coat should be removed, the shirt-sleeves rolled up, and a clean long apron or towel put on over the other clothing. The hands and forearms are then thoroughly scrubbed and washed with liquid antiseptic soap, special care being paid to the nails. They are then steeped for several minutes in a 1-in-1000 solution of biniodide of mercury. When the hands have thus been disinfected the practitioner must, whenever they become reinfected by contact with septic material, cleanse them again. The nurse must always similarly disinfect herself before handling the patient.

All instruments likely to be used should be sterilized by boiling in carbolized water (1 in 20), including scissors, forceps, dilators, needles, etc. A new vaginal douche should be provided, thoroughly clean and disinfected, and kept specially for the purpose, the nozzle being either of glass or metal, so that it can be boiled each time after using.

A supply of tablets for making a 1-in-1000 solution of biniodide of mercury, some pure carbolic acid, liquid antiseptic soap, lysol, iodoform gauze and sublimate wool or Gamgee tissue, and T-bandages should also be provided. For sutures sterilized silk or silkworm-gut, stored in tubes of carbolized alcohol (1 in 20), answer best.

Before delivery the bowels should be thoroughly cleared by an enema, an aperient having previously been given—the night before, if possible. The enema should at once be followed by a washing and swabbing of the anal region, and any parts contaminated at the time, with 1-in-1000 biniodide of mercury solution. Next, the whole of the vulva and perineal regions are well scrubbed with liquid antiseptic soap, and the hair on each side of the labia and at the lower part of the mons veneris is clipped short with scissors, or preferably shaved. A carbolic compress (1 in 40) is then applied over the vulva. The above details may usually be left to the nurse. The practitioner's first duty, after performing his own antiseptic toilet, should be to disinfect the vagina, both externally and internally, by swabbing and douching freely with 1-in-1000 biniodide of mercury solution, to which a little lysol has been added for lubricating purposes. This should be done with the same care and thoroughness as though he were about to perform a vaginal hysterectomy. He should then apply a fresh compress, which is kept on as much as possible until the child's head is delivered, the prepared finger or hand being introduced beneath it when necessary for purposes of examination or manipulation.

After delivery, one hand is maintained on the uterus to keep it firmly contracted, and any clots are squeezed out into the vagina. This passage is then douched out with 1-in-1000 biniodide of mercury solution, the finger being meanwhile introduced to clear out any clots, shreds of membrane, etc., and to explore for lacerations of cervix or vagina. Any considerable lacerations are at once sutured, the raw edges being first well cleaned with the antiseptic. A final douching is then given, and if thought fit a weaker solution (1 in 4000) can be used toward the end. The external genitals are then cleaned with antiseptic solution and dried with sublimate or izal wool.

Local Antiseptic Dressing of the Patient.—A strip of iodoform gauze wrung out of 1-in-1000 biniodide of mercury solution is inserted within the vagina (to act both as a drain and a filter), and a second piece is applied over the whole vulval region, and outside this a large pad of sublimate wool or Gamgee tissue is placed, and fixed in position either by a T-bandage or by a folded diaper pinned in front and behind to the lower edge of the abdominal binder.

After-treatment.—As the outer dressings become soiled they are replaced by clean ones; the strip of gauze internally is not changed until the patient is again douched. The washing of the external

genitals and the douchings are continued once or twice daily, until all wounds are healed and all discharge has ceased—*i.e.*, at least ten days to a fortnight—the antiseptic dressings being meanwhile constantly replenished, as in dressing any external wound.

With regard to the action of the bowels, the author strongly protests against the routine use of aperients on the third day. He has observed a number of instances in which infection has been traceable to "soiling" of the vulval region with feces (and however careful the nurse may be, it is sometimes difficult to avoid this). So long as the patient is comfortable, there is no reason why there should be any interference with the bowels, and in cases where the laceration of the perineum has extended into or close to the anus, the author prefers to leave the bowels undisturbed for a week or longer, as he has never seen any harm result therefrom.

[In certain cases the direction to use douches, and to act as if for a vaginal operation, may be necessary, but in most instances we think this advice is excessive.—ED.]

SOME POINTS ON THE DRUG TREATMENT OF PNEUMONIA IN INFANTS AND YOUNG CHILDREN.

FISCHER advises in the *New York Medical Record* of April 23, 1904, that in the case of infants suffering from pneumonia the child be placed in a room having fresh air and all the sunlight possible. The temperature of the room should be between 68° and 72°, never warmer, rather cooler.

There are three methods of eliminating toxins from the body: First, through the bowel; secondly, through the kidneys; and thirdly, through the skin. In every febrile process there is a slight torpidity of the secretions, hence it is wise to stimulate the emunctories of the body. One drop of tincture of aconite added to one-half teaspoonful of spiritus mindereri can be given three or four times at intervals of one hour until diaphoresis is produced. A hot mustard foot-bath given at the same time will aid the aconite in reducing the temperature. If the fever persists in spite of the aconite, sponging the surface with alcohol and tepid water every half-hour will be very grateful and aid in reducing the fever. If we are dealing with a temperature of 105° F. or more, the infant should be watched very closely for twitching or spasm. The temperature at this stage should be reduced by the diaphoretic drugs above mentioned, and instead of cold sponging a cold pack consisting of a sheet wrung out in cold water should be wrapped around the chest, and should be repeated every half-hour until the temperature goes below 103° F. The effect of the cold pack is not only seen in the reduction of the temperature, but some children will fall into a restful sleep. There is always a soothing effect on the nervous system when cool packs, at a temperature of 70° to 80° F., are applied.

A good dose of castor oil to relieve the intestinal tract is advisable. A very pleasant laxative, and one that the author uses in preference to castor oil, is citrate of magnesia. As citrate of magnesia contains citric acid, it not only has a laxative effect, but a diuretic effect as well. It also quenches thirst. The author frequently advises the use of acidulated water, made by adding five drops or more of diluted phosphoric or diluted hydrochloric acid to a tumblerful of sweetened water, to be given *ad libitum*.

This is the most important part of the treatment. Unless the strength is supported by proper feeding we cannot expect to have resolution take place and see the baby recover.

The interval of feeding should be prolonged and the food given well diluted. An infant that received eight ounces of milk before it was taken sick should receive during an attack of pneumonia four ounces of milk and four ounces of water. If this is not well borne, milk should be excluded and whey given in its place. Soup or broth or strained gruel may be given. Water should be given freely.

No greater mistake is made than constantly to disturb a child suffering with pneumonia. To give medicine every hour night and day, and keep the child awake, is to retard convalescence. While food may be necessary to stimulate subnormal vitality it should be given with due regard to an infant's requirements, and if the heart's action is good it is poor judgment to awaken a sick child to give food or medicine.

An interesting case, seen recently by the author in consultation, was that of a child who vomited during the course of lobar pneumonia. The child was either fed or wakened for medicine every fifteen minutes night and day. Besides this it received a "cough mixture" that contained syrup, which is one of the worst things to pour into a feverish stomach. When the medicine was stopped, and absolute quiet for at least three hours at a time ordered for the infant, the vomiting ceased and the child finally recovered. The child slept quietly after receiving its food or medicine until it was again awakened. The author makes it his rule never to disturb an infant oftener than every two hours by day, and rarely oftener than every four hours at night. By this he does not mean to advocate neglect, especially if nervous symptoms, such as twitching or spasms, are seen during hyperpyrexia, but in an ordinary case of pneumonia in which no severe fever exists rest is as important as fresh air and food.

MERCURIC CYANIDE AS A SURGICAL DISINFECTANT.

HARRINGTON, of Boston, who is so well known as a teacher in matters hygienic, contributes to the *Boston Medical and Surgical Journal* of January 14, 1904, the results of a research on this drug.

In the course of a series of experiments in the field of practical disinfection, the writer turned his attention to the determination of the rapidity of action of mercuric cyanide, a substance which of late has come into considerable favor in surgical practice, being used in solutions of 1:1000 and 1:2000 as a substitute for corrosive sublimate, over which it is believed to possess a number of distinct advantages, among which are non-formation of precipitates with albumins, and rapid action. The latter quality is certainly of the very greatest importance, since an agent that destroys bacteria only after prolonged contact may be worse than none at all, because of its leading false sense of security, for with full confidence of immediate action one may proceed in an operation with an agent that serves no useful purpose.

In testing the germicidal property of mercuric cyanide, silk threads, impregnated with twenty-four-hours-old bouillon cultures of bacillus pyocyaneus, bacillus coli communis, and staphylococcus pyogenes aureus and albus were subjected to the influence of a 1:1000 solution of the pure salt. After varying periods of contact they were withdrawn and planted in tubes of sterile bouillon, which were then incubated at 37° C. for twenty-four hours. In the first experiment the longest period of contact was ten minutes. The table below, in which + indicates growth and — indicates sterility, sets forth the results.

Exposure.	B. pyocyaneus.	B. coli.	Staph. aureus.	Staph. albus.
10 seconds	+	+	+	+
20 "	+	+	+	+
30 "	+	+	+	+
40 "	+	+	+	+
50 "	+	+	+	+
60 "	+	+	+	+
1½ minutes	+	+	+	+
2 "	—	—	+	+
3 "	—	—	+	+
4 "	—	—	+	+
5 "	—	—	+	+
7 "	—	—	+	+
10 "	—	—	+	+

The results obtained with the two species of pus cocci led to further experiments to determine how long these organisms can maintain their resistance. Staphylococcus albus survived exposures up to twenty-five minutes, but was destroyed in half an hour; staphylococcus aureus was unaffected by contact for no less than three hours. The threads infected with this organism were exposed 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, and 60 minutes, 1½, 2, 2½, and 3 hours, and with the exception of the last, which required 48 hours' incubation, all yielded abundant growths within 24 hours.

Mercuric cyanide is more commonly employed in conjunction with double its weight of borax, which substance serves to prevent corrosion of instruments. Since the combination might perhaps prove to exert a more pronounced bactericidal influence than the cyanide alone, it too was given a trial. Prepared tablets, one of which in a liter of water gives a cyanide strength of 1:2000, were obtained, and two solutions were made—one with four tablets (1:500), and the other with one (1:2000). Neither proved to have any influence whatever on staphylococcus aureus up to a half-hour, beyond which time the tests were not continued.

The above results can lead to but one conclusion concerning the practical value

of mercuric cyanide, for a substance which, when employed in the strength recommended, cannot destroy all known species of pus organisms within three hours, and in double that strength accomplishes nothing in thirty minutes, can hardly be classed among the efficient germicides.

ACUTE OTITIS MEDIA.

In the *Northwestern Lancet* of April 15, 1904, PARSONS gives the following advice as to the treatment of this condition:

To prevent the occurrence of middle-ear trouble such nasal and pharyngeal diseases as will render liable infection of the Eustachian tube and tympanum must be attended to.

The dismissing of cases of catarrh with the statement that "everybody has it and that there isn't very much to be done with it anyway," is responsible for most of the middle-ear trouble occurring after the first few years of infancy.

Hypertrophy, and degenerate conditions of the pharyngeal lymphoid structures, should receive proper treatment. If we remove the adenoids and degenerated tonsils, we have removed a great predisposing cause. If we relieve the catarrhal conditions of the nose and nasopharynx, and keep the mucous surfaces clean with alkaline antiseptic douches, we will have little infectious material enter the Eustachian tube. Douching must be done carefully, and blowing the nose should be done with caution. Digging away at the external canal to remove cerumen should be prohibited. (This last remark might be listened to with advantage by some physicians).

A diagnosis of otitis media having been made, our treatment should be governed by the pathological conditions present. A free movement of the bowels is desirable. In the earliest stage congestion may be lessened, and secretion diminished, by the administration of 1-500 grain each of atropine and aconitine, given hourly until their physiological effect has been produced, and thereafter as often as may be necessary to keep up the effect as long as desired. Chloroform vapor may be poured into the ear for the relief of the pain. Application of a 10-per-cent solution of cocaine and adrenalin solution to the drumhead is often efficacious; also dry heat from a hot salt-bag. Inflation of the tympanum with the vapor of menthol and camphor helps the pain both by the local action of the drugs and the equalization of the air-pressure. The drumhead should be inspected to note if there is any accumulation of secretions behind it. If this is the case, or if the drumhead is sclerotic, and other efforts to relieve the pain have failed, free incision of the membrane is demanded. This should be done under strict antiseptic precautions both as to instruments and field of operation. If no secretion is found, the wound is left to heal, which it does readily. If secretion is present, a free enlargement of the puncture is to be made, so as to permit free drainage. If there is no pus present, the ear is to be packed loosely with sterile gauze, and a sterile dressing put on the outside. This is to be continued until healing has taken place. If pus is present, it must be treated like pus in any other part of the body. Free drainage is imperative.

At this point aurists disagree as to the best mode of procedure. For example, Bochner of Leipsic uses the dry method, claiming thereby to get sufficient drainage, give the organ of hearing rest, and avoid infection of other parts. Dry sterile or medicated gauze is packed into the external canal, up to the membrana tympani, secretions having been first carefully mopped out with sterile cotton swabs. The dressings are changed once in twenty-four hours, or oftener if necessary. The majority of aurists, however, use the other method of irrigating. Some prefer sterile water or saline, others some antiseptic solution, keeping the ear packed between irrigations as in the dry method. There are undoubtedly advantages in both methods. However, if a large amount of pus is present free irrigation would seem to be of advantage. This is, of course, to be done very gently. A 1:1000 formalin or bichloride solution, used until the return flow is clean, and followed by instillation of 10-per-cent to 20-per-cent argyrol solution, has given the best results in the author's hands. The argyrol is allowed to run into the tympanum through the perforation by inclining the head, and the external canal is then

packed, inserting a small wick through the opening if possible. If the secretions gum up the canal, they are easily removed by the application of peroxide. The discharge must be attended to carefully until it has ceased. To neglect it and allow it to become chronic would be a serious mistake.

If mastoid complications set in, prompt, radical surgical interference must be resorted to. Pierre Brunel lays down the following rules, which sound somewhat radical, but which will no doubt become more generally accepted not long hence:

"If the discharge is extremely abundant, open the antrum, even if the apophysis is not painful, in order to establish good drainage, to avoid complications, and obtain a rapid and radical cure. If the apophysis is painful, or if the posterior superior border of the canal is affected, the antrum certainly contains pus, and it is absolutely necessary to open it. To delay in such cases is to expose the patient to complications always grave and frequently fatal."

THE TREATMENT OF ACNE VULGARIS.

In the *Interstate Medical Journal* for April, 1904, ENGMAN advises the following treatment for this disease:

When the lesions are superficially situated, the curette, when passed firmly and swiftly over the skin, detaches the crust and scrapes off the heads of the papules, pustules, and comedones, and their contents can then be easily expressed. The local medication used can therefore act more directly upon the offending organisms after the removal of the protective crusts and covers of the lesions.

In the writer's experience the *x*-rays are particularly beneficial in two forms of acne: 1st, acne indurata, so-called, when the lesions are flatly convex, presenting no summit or peak, whether superficial or deeply situated, and when of a markedly inflammatory nature; 2d, in acne rosacea, accompanied more or less by active inflammatory symptoms.

When the lesions of acne are more or less deeply situated in the skin and are of a flatly convex form, such as we find in acne indurata, the curette fails to perform its proper office and glides over the little lesions, leaving them in their former condition; therefore the lancet must be used to evacuate their contents, which causes some scarring and does not prevent the formation of new lesions in the neighborhood. Here the rays act as a specific, causing the little tumors gradually to disappear, sometimes as if by magic. Often after the first treatment marked improvement has resulted. There is no remedy, in the author's experience, that has this specific action; the effect is a specific one, for the lesions can be made to disappear under their influence without producing any obvious change in the normal skin about them—an action similar in its results to that of mercury upon syphilitic lesions. Such a result must awaken the enthusiasm and gratitude of one who has patiently wrestled with a stubborn condition like acne indurata for years, with at times discouragement amounting almost to despair. Before the introduction of the rays in the treatment of acne indurata we could promise the patient little more than a slim diet, much medicine, many thrusts from the lancet, greasy salves, sulphurous lotions, while now we can cause the disappearance of the disease without any of these hardships. Even upon a diet liberally mixed with chocolates, patties, and other much-vaunted pimple producers, the writer has seen the disease disappear; however, he does not recommend this particular dietary except as an experiment.

By the older methods of treatment relapses were as severe as the original attack; in fact, new lesions would appear during active medication, in spite of the most scrupulous care and diet, thus dragging the cases on for months and years. With the *x*-ray relapse is not so frequent; when it does occur the lesions are much less resistant, more superficial, and far more easily eradicated than the earlier ones. By judiciously timed exposures, after the cure of an attack, recurrence can in the majority of cases be prevented. One patient who has not been free from acne lesions for eighteen years, has now enjoyed perfect immunity for eight months. This lady had been treated by some of the most celebrated men in this country and Europe, had spent months in watercures, had been to celebrated internalists, dieted, had conscientiously tried to relieve herself of this disease, but without avail until she submitted to the *x*-rays. Such an example is enough to convince one of

their efficacy. In acne rosacea the results are equally as good as in acne indurata, but the involution of the lesions is slower than in the former condition.

Mild curettage of the face on the days that the rays are not used is, in this condition, often of great assistance. In the management of acne rosacea, as well as acne indurata, new lesions occasionally appear during the series of exposures, but they are non-resistant, mild, and quickly undergo involution. Relapses in the majority of cases can be prevented in the former as well as in the latter condition by the proper use of the rays after the initial eradication of an attack.

Those who have used the *x*-rays in acne are sanguine of their efficacy; yet many doubt the advisability of using an agent which may be so potently destructive and terrible in its action in so harmless a disease.

In the first place, acne is not a harmless disease. Of course it does not destroy life, but it does in many, many instances destroy the social ambition and future happiness of those whom it afflicts. Its disfiguring scars render hideous many a charming face, and it turns an otherwise happy girl into a morbid, sensitive, and melancholic individual—one who would grasp at any straw to be free of her unsightly disfigurement. Acne is not to the afflicted individual a harmless disease, as it may change the whole course of her future career and happiness.

The dangers of the *x*-rays in acne are: 1st, destructive dermatitis; 2d, atrophy of the tissues not dependent upon an active dermatitis; 3d, slowly progressive changes in the skin, which are spoken of in a vague way as possibly occurring years after treatment.

A FEW OBSERVATIONS CONCERNING THE USE OF FORMALDEHYDE AS A PRESERVATIVE IN URINE.

KENNEY has investigated this matter and reports his results in the *Colorado Medical Journal* for February, 1904. He concludes that formaldehyde as an artificial ingredient of the urine will lead to deceptive results in uranalysis, by (*a*) making the urine appear albuminous when it is negative; (*b*) not giving a typical reaction when albumin is present.

The reliability of Introna's test, namely, the use of formaldehyde in albuminous urine as a reagent, is to be questioned, inasmuch as the effect of formaldehyde on negative urine is the same, though to a more marked degree, as that on albumin in solution, the difference in the color and density of the precipitate being immaterial.

He also states that as a factor in the production of a possible pseudoalbuminuria the therapeutic use of atropine is a subject well worthy of extended observation and study.

ERGOT IN TYPHOID FEVER.

LIVINGSTON has already published several papers in which he has lauded ergot as a drug of great value in a number of diseases. In the *New York Medical Journal* of April 16, 1904, he speaks of its use in typhoid fever.

Without presuming to indicate a plan of treatment for this grave disorder, the author freely states that he does not accept the dictum of any one who declares that "typhoid fever is not a disease to be treated by medicines." The object of his paper is solely to call the attention of the profession to what he believes to be the most important single medicinal agent in the treatment of the disease, because its peculiar province is to correct that which underlies every one of the more serious phases which typhoid fever develops.

The solution of ergot which he has thus far found the most satisfactory for hypodermic use is made by dissolving one drachm of solid extract of ergot in one ounce of sterilized distilled (cooled) water. After filtering the solution add two minims of chloroform.

The greatest care should be exercised to secure a sterile solution by having everything made sterile which is used in preparing it. The ergot "lozenges" (each containing one drachm of the extract wrapped in sterilized tin-foil) are convenient in making one's own solution.

The best syringe is an all-glass one, with asbestos packing, the needle being the only metal part. It is filled by removing the piston from the barrel and pouring in the solution.

The dose is one-half to one drachm,

which may be given twice to six times a day or oftener, as indicated in the individual case.

There is more tendency to irritation at the site of injection in fever cases when no fever exists, but such irritation will not be serious if proper attention is paid to sterilization of solution, syringe, and needle, as well as of the skin where the needle is to be introduced.

[We confess that we do not feel very sanguine about this proposition.—ED.]

THE NECESSITY FOR SUPPLEMENTARY MEASURES AFTER THE REMOVAL OF ADENOIDS.

In the *Archives of Pediatrics* for April, 1904, FRIDENBERG in an article on this subject gives the following excellent advice, first asserting that there are experienced and dexterous operators who make no attempt to lay down rules of hygiene after the removal of adenoids, and who seem to think that nasal respiration must be established automatically, as a matter of course. We know that the normal respiratory current is an important factor in regulating the blood-supply of the nasal mucous membrane, and indirectly in affecting the volume and vascular tone of the turbinate bodies, and that compensatory hypertrophy of these bodies may be a remote result of nasal obstruction due primarily to other causes. If such be the influence on the nasal mucosa, a like rôle may well be ascribed to the respiratory current in the neighboring nasopharynx, which is related histologically and physiologically. A failure to restore nasal respiration should favor the reappearance and the luxuriant growth of adenoid masses, where the predetermining cause, the etiological factor of a constitutional tendency to lymphatic hypertrophy, an adenoid status, is already present.

The adenoid operation when thoroughly done removes an obstruction and permits nasal respiration. It by no means insures it. We have to deal, except in the case of very young children, with subjects in whom the mouth-breathing is habitual and inveterate. They have long since forgotten, if they ever knew, that there is such a thing as free breathing with the mouth closed.

Freeing the nasal route will not be sufficient to side-track the impulse toward mouth-breathing; to reëstablish a form of respiration, the nasal, which has heretofore been difficult and insufficient, and hence has come to be instinctively avoided. A training of new inhibitions, encouragement of new volitions, a whole system of coördination is required to effect this change. The children must be admonished again and again to keep the mouth closed, encouraged to take deep and regular inspirations through the nose; and when supervision and the action of the will are in abeyance, as at night, some mechanical means of keeping the mouth closed may be required for a short time after operation. As a general rule we shall find that if nasal respiration during waking hours has once become firmly established, and is sufficient for even unusual demands, such as those of active exercise or the reflex respiratory accentuation following cold ablutions, there will be no mouth-breathing during sleep, and mechanical aids will be unnecessary. Our first aim then is to induce ample and regular respiration; even to increase the demands of the economy for air by exercise and cold sponging without losing sight of the beneficial influence of both factors on appetite, metabolism, and general health, and to see that those demands are met with a closed mouth. For those who are accustomed to nasal breathing, sleep when the mouth is open is almost impossible, and obstruction so disturbing as to awaken them from uneasy and fitful slumbers. Such a habit of reaction we aim to establish in those who have been mouth-breathers, and the first step is insistence on nasal respiration from the moment that the operation has literally opened the way for it. The children must be constantly coached and reminded to keep the mouth closed. Breathing exercises, cold spongings of chest and back, followed by brisk friction, play and exercise in the open air, are all important aids to the establishment of a normal respiratory modus.

Another factor of breathing which has not received the attention it deserves is that of mastication. During the act of chewing, mouth-breathing is normally absent, and respiration becomes automatically nasal. Conversely, where there is nasal obstruction, and mouth-breathing takes place, chewing is hasty, incomplete, and accompanied by labored and intermit-

tent respiration. The children struggle with respiration and deglutition, and neither function is performed satisfactorily. The consequences for digestion may be imagined. One of the simplest ways to reëstablish nasal respiration where there is no mechanical impediment is to insist on slow, thorough, and prolonged mastication. The oftener this is done the better; and as the children obviously cannot be eating all the time, it is important to accomplish the same result independently of the ingestion of nourishment. For this purpose the author does not hesitate to advise parents to allow, in fact to encourage, temporarily, a course of gum-chewing immediately after operation. The "awful habit," which has come in for much, perhaps merited, censure, seems from observation of its effects in a number of cases to be a valuable aid in reëstablishing nasal respiration by preventing mouth-breathing, encouraging thorough mastication, and tending to a certain extent to develop the jaw. The chewing habit is what we wish to establish; with gum, if it must be, but—chewing habit.

RHEUMATIC FEVER.

MOULE contributes a paper on this subject to the *Australasian Medical Gazette* of March 21, 1904. He advises that we first give an aperient, calomel by preference. Next, and very soon after, give sodium salicylate. This is a specific in rheumatic fever if given freely enough. It should be given in doses large enough to drive away the pains and pyrexia in a few hours, and then given in small doses to maintain the action of the drug.

Many men are so afraid of the toxic effects of sodium salicylate that their maximum dose is 10 grains, and they have said they were very much disappointed with sodium salicylate, but as their dosage consisted of from 5 to 10 grains it is not surprising that they got such poor results. The dose is from 10 to 30 grains, and the nearer we get to the maximum the better for our patients.

Sodium salicylate does not merely relieve pain and lower the temperature; it is an antidote to the rheumatic poison. Not only is pain relieved and the temperature reduced to normal, but the joint swellings disappear, the patient feels well, eats well, and sleeps well, and rapidly recovers his strength.

Even such a master as Osler thinks the drug merely relieves the pain. He believes the disease is self-limited, and that the use of salicylate compounds makes relapses more common. He says sodium salicylate may be given in 15-grain doses for eight or ten doses. It seems like blasphemy to say that Osler is wrong, but this the author positively asserts. In one of the author's cases, although 20 grains of sodium salicylate every two hours brought some relief, it was not till 30 grains was given every hour that the disease was conquered; also in another case an increase from 4 grains every three hours to 4 grains every hour soon conquered the disease.

There is no need to be alarmed when toxic symptoms appear. There may be a slow, irregular pulse, a craving for plenty of fresh air, and nocturnal delirium resembling tremens, besides the usual auditory disturbances, but there is no need for fear. Of course there is need for care, but that is not fear. The medical man must have confidence in himself to do his patient justice. When the toxic effects are marked the drug should be stopped for a few hours. The toxic effects soon pass off, and the administration of the drug can be resumed before the disease has had time to return. The medical man should see his patient several times a day when giving large doses, and it is often desirable to give some ammonia and tincture of nux vomica with the salicylate when so doing.

The author believes the disease should be given a knock-down blow by large doses; afterwards it is easy to keep it down by small ones. We should remember that the rheumatic poison is more dangerous than sodium salicylate, and that underdosing will do more harm than overdosing. The Adelaide Hospital Pharmacopœia contains a Haustus sodii salicylatis which has 15 grains in each dose. When the author was house physician there, it was the practice to give this every three or four hours in cases of rheumatic fever, sometimes without much benefit. In one case there was not much benefit till by some mistake the patient got double doses, which promptly cured him. Since that time the author has always increased the dose if it did not soon

give complete relief. He usually gives 30 grains at once, then 20 grains every two hours till pains cease, then 10 grains three times a day. Nausea is often complained of, and the drug has to be stopped for a while. If the drug is given frequently in large doses, nausea will not be troublesome till the disease is subdued, and then the drug may be stopped for a while without the disease coming back. The nausea soon passes off, and the drug can again be given.

ACUTE PNEUMONIA.

The London *Practitioner* for April, 1904, editorially gives the following advice as to the treatment of acute pneumonia. It expresses the belief that the chief danger to be combated is failure of the heart. Warning of this is given by the frequency of the pulse. In ordinary cases of pneumonia this is not very greatly raised, but a rate exceeding 120 per minute is an indication for the use of some stimulant. Alcohol is the usual kind employed, and it is advisable to begin with small amounts, such as two ounces of brandy or whiskey in the twenty-four hours, and to increase them if necessary. Large amounts of this drug are in some cases needed, up to 12 or 16 ounces, but the necessity for these large doses is not common. In grave conditions of heart failure a mixture of ether and ammonia (spiritus ætheris, min. 20; spirit. ammoniæ aromatici, min. 20; tincturæ aurantii, min. 30; aquæ chloroformi, 1 ounce) may be found useful; or strychnine may be given hypodermically in doses of 5 minims of the official solution. In cases marked by profound toxemia the administration of oxygen inhalations may sometimes appear to save life, but the gas must be given freely and almost continuously to have much effect, and recourse to this remedy should not be too long deferred, especially if there be any tendency to cyanosis.

Indications for the use of alcohol are the occurrence of delirium, beyond the slight wandering at night, which is common in all conditions marked by high fever; cyanosis; irregularity of the pulse; and weakening of the tone of the first cardiac sound as heard at the base of the heart. When large or moderate doses of alcohol have been in use, it is unwise to withdraw them suddenly on the occurrence of the crisis, as this may be accompanied by a condition approaching collapse. The alcohol should be only gradually diminished as the patient's strength returns.

There is often constipation in cases of pneumonia. This need not cause anxiety. If the case be seen quite at the beginning (within the first two days) there is no harm in administering a dose of calomel followed by a saline draught; but later in the course of the attack it is inadvisable to make use of purgatives, as there is a tendency to diarrhea at the time of the crisis, and this may be aggravated to a dangerous extent by aperient medicines. Should the patient complain of any discomfort from constipation, an enema may be used, but this is not often needed. The disease being short, failure of the bowels to act during the fever may be neglected.

For the same reason there is usually no need to attempt to reduce the temperature. A high temperature which only lasts a few days is unlikely to do serious damage to the tissues. Tepid sponging is, however, often grateful to febrile patients, and there is no reason to fear to employ this in pneumonia. It may assist the sick man to sleep if done toward night. If hyperpyrexia occur, it must be actively treated by cold sponging or even a cold bath.

TREATMENT OF APPENDICITIS.

The *Clinical Journal* of April 13, 1904, contains a lecture on this subject by Mr. BROOK, of London, in which he gives the following excellent advice:

1. The very great majority of cases will get over the attack if treated on simple medicinal lines.

2. During the quiet period the appendix should be removed so as to obviate another attack.

3. During an attack the patient should be carefully and frequently watched, and on any sign of fulmination operation should at once be done.

4. If there are signs of suppuration an attempt should be made to tide the patient over the fifth day, and then the pus should be evacuated, if possible, without opening the general peritoneal cavity. If the appendix presents in the wound it should be removed, but no elaborate search should be made for it. It may be removed later on.

5. In general suppurative peritonitis use drainage, massive infusions, and calomel.

WHAT IS THE BEST ANESTHETIC FOR CHILDREN?

BENNETT in the *Archives of Pediatrics* for April, 1904, has something to say on this subject. Of chloroform he states that there is a firmly fixed and widespread belief that this is the best anesthetic for children, and the belief is carried to the point of supposing that this agent is less dangerous in them than in adults, or that they possess a special immunity from its dangerous action not enjoyed by older individuals.

This is a grave error, without foundation, and is responsible for the common and dangerous practice of choosing chloroform for children simply because they are children. The writer believes that chloroform is a particularly dangerous anesthetic for children; and this conclusion is based upon the personal observation of many cases of more or less alarming depression of the circulation and respiration during the careful administration of this anesthetic. The induction of anesthesia in children must often be accomplished during crying and struggling, and the great irregularity of the respiration under these circumstances makes it difficult to administer chloroform in the gradual, smooth manner which is so necessary for safety. Sudden overdosage is exceedingly common at this time; the administrator, anxious to quiet the child, is tempted to add the chloroform faster than he would if the patient were quiet, and thus the intake of anesthetic is increased at an alarming rate. If the dropping of the chloroform on the inhaler is doubled and the respiration exaggerated by crying and struggling to three times the quiet respiration, the patient will receive about six times as much chloroform as he should. This is not an overestimate of what often occurs, and it explains that familiar picture of a child struggling under chloroform, suddenly becoming quiet, pale, and deathlike, with failing pulse and respiration. It is a case of either overdosage or too rapid dosage; either the amount administered has been too great, or an amount which would seem reasonable has been taken in too rapidly.

It is necessary, therefore, to proceed with great caution, and to add chloroform at a slower rate during crying, struggling, and exaggerated respiration than during normal breathing. Children generally become quiet quite suddenly during the induction of chloroform anesthesia, and it is a wise plan to suspend the administration for a moment when this occurs and note the effect of the dose which has already been taken in. It will often be observed that a marked and prolonged effect follows the initial dose, and this demonstrates the wisdom of the pause in the administration, as otherwise an unnecessary and perhaps dangerous amount may be given. When it is seen that the initial dose has not been excessive, the administration may be resumed, and as the respiration is now more regular the narcosis progresses with much greater safety.

The most important principles of chloroform administration are the avoidance of a concentrated vapor and an even use of the smallest amount of the anesthetic compatible with satisfactory anesthesia.

While chloroform is not to be recommended as a routine anesthetic for children, ether being preferable as a rule, there are certain conditions which reverse this order. In the presence of acute bronchitis, pneumonia, nephritis, and marked respiratory obstruction, chloroform is usually to be preferred to ether, as the latter aggravates these conditions to a much greater degree than chloroform. Diluted chloroform, as in the A. C. E. and similar mixtures, is safer than pure chloroform, as it yields a more dilute vapor. The mixtures should be administered in the same manner as pure chloroform, drop by drop.

There is a very general belief that ether is an unsuitable anesthetic for children. They are said to take it badly and to be greatly irritated by it, so that the respiration is interfered with by choking, coughing, and by an excessive flow of mucus. These unpleasant effects are due chiefly to faulty administration, and the fault is in using too much ether and forcing it upon the patient too rapidly. Whatever form of inhaler is employed, the ether should be presented very greatly diluted at first, and it should be increased so gradually as to avoid these effects as com-

pletely as possible. In this way ether may be given to children with great satisfaction, particularly if preceded by nitrous oxide, and a transition gradually made from that anesthetic to ether. Nitrous oxide should be used with great caution and sparingly in infants even in this way before ether, and in all children air should be given at an early period.

There is no question whatever of the great safety of ether, and it should be chosen as the routine anesthetic for children except in the conditions above named as rendering chloroform preferable. Such circulatory depression as is commonly caused by chloroform practically never results from ether; on the contrary, the circulation is almost invariably markedly stimulated.

THE TREATMENT OF RHEUMATOID ARTHRITIS.

The *Birmingham Medical Review* for March, 1904, contains an article on this topic by PERRY. He expresses the belief that massage is of the greatest value in the treatment of rheumatoid arthritis, of whatever form. In the more acute conditions the massage should be general, in order to combat, as far as possible, the marked general muscular wasting which is so characteristic of this acute form of the disease. In the more chronic conditions the massage need only be applied to the affected joints and their respective muscle groups. The relatives of the patient can, as a rule, be taught to perform the necessary massage, except in the acute cases.

A variety of drugs have strong supporters. The writer placed arsenic and the iodides in the front rank. Luff, however, considers that guaiacol carbonate and potassium iodide are the most valuable. Of the guaiacol carbonate he gives at first five grains three times daily, and increases it to 15 to 20 grains for each dose. The writer's experience of guaiacol, or its carbonate, has not been satisfactory, and he attributes a greater value to the iodides (more especially the iodide of iron) and to arsenic. The syrupus ferri iodidi may be given in drachm doses for several months at a time; it does not, as a rule, produce the depression which so often follows the exhibition of potassium iodide. In the subacute and chronic cases it is believed to be a good plan to alternate the arsenic and iodide treatment, giving a drachm of the syrup of the iodide of iron or liquor arsenicalis 5 minims, three times daily during alternate periods of two months. It is frequently stated that salicin and the salicylates are not of value in the treatment of rheumatoid arthritis. With this the writer does not agree, and while they certainly have no power over this disease comparable to their action in rheumatic fever, he believes they have a distinct use. In the most acute cases the salicylates usually give distinct relief to the articular pain, which may be severe; there is no evidence that the progress of the disease is checked, but the relief of pain is of value. In the subacute and chronic cases the writer has found it is useful to give a nightly dose of sodium salicylate—gr. x, xx, or xxx—according to the age of the patient. This relieves the night pains, which are often troublesome; one should bear in mind the fact that the drug has a slight but distinct narcotic effect. Upon the whole he would give the iodide of iron the chief place in the treatment of rheumatoid arthritis.

The treatment by massage, vapor baths, or superheated air is also mentioned in this paper. Electrical baths have also many advocates. Dr. Lewis Jones states that in his opinion alternating currents from the induction coil, or from an alternating dynamo-supply, seem to be the most useful treatment. He considers that electricity offers far the most valuable treatment. For the relief of articular pain various anodyne liniments of aconite, belladonna, menthol, or chloroform may be used with advantage. The following is a useful paint:

℞ Menthol, 1 part;
Chloral hydrat., 2 parts;
Chloroformi, 3 parts.
Ft. pigment.

Blistering may be of value if the articular pain is severe, or the synovial effusion considerable. A series of small blisters applied round the joint on successive days is perhaps the best method of application. The absorption of articular fluid may often be assisted by elastic pressure in the form of elastic webbing bandage. Splints can rarely be desirable, except when a joint is completely disorganized, as th-

main object of treatment should be the preservation of the motility of the joint whenever practicable.

CORNEAL ULCERATION DUE TO NASAL INFECTION.

ZIEGLER, of the Hills Eye Hospital of Philadelphia, in *American Medicine* of April 9, 1904, says that the nasal origin of this affection indicates the treatment to be applied. Irrigation of the nasal chambers with an antiseptic or saline solution should be carefully carried out. If pus is present, hydrogen dioxide (diluted 1 to 4) should be dropped into the nostril by the ordinary eye-dropper, two or three times a day, and allowed to trickle back into the throat.

Local applications for the reduction of the turgescent membranes are often necessary. A weak solution of cocaine (one to two per cent) may be applied with cotton wrapped on a wire applicator. This may be followed by an application of

> Camphor,
> Menthol, of each 65 gm. (10 gr.);
> Tr. benzoin comp., 7.5 Cc. (2 fl. dr.);
> Boroglycerin (50 per cent), q. s. ad 30 Cc. (1 fl. oz.).
>
> Apply to nose daily, or on alternate days.

If any more serious nasopharyngeal lesion is present the patient should be promptly referred to the rhinologist for relief. Enlarged tonsils or adenoid vegetations in the pharynx, and septal spurs, polypi, or other nasal growths should have surgical attention. If the ocular condition has become chronic it may be necessary to reduce the hypertrophied and turgescent turbinates by galvanocauterization. The object to be accomplished by such a procedure is threefold—to promote free antral drainage, to secure freedom from pressure contact, and to obtain free nasal breathing.

The lacrimo-nasal duct may be active or passive in the transmission of germs. It may contain septic secretions without a show of pus, and the amount escaping through the puncta into the eye may be so small as to be practically invisible. Even lacrimation may be absent. If the nasal swelling is reduced the turgid condition around the valve of Hasner will be lessened, and the secretions will have a natural downward drainage. Ocular irrigations may aid this somewhat. Pressure on the membranous duct will often empty its contents. The small cannula of a lacrimal syringe may be introduced into the puncta and very gentle irrigation attempted. If these measures fail it is evident that a patulous tear duct must be secured either by incision or by rapid dilatation. Such surgical intervention naturally demands the services of the ophthalmic surgeon.

As incision often leads to cicatricial contraction, the writer prefers the method of rapid dilatation without incision, which he has practiced for some fourteen years past. This is done by first introducing a needle probe into the lacrimal puncta and passing it through the membranous canal to the bone. It is then withdrawn, and the author's conical dilator with a maximum size of a No. 10 probe is passed through the previously stretched membranous canal, and thence by gentle force through the bony canal into the nose.

While the general shape of the dilator is conical, it is rounded or bellied just above the point, which allows it to dilate so rapidly that the point does not engage, and the dilator never becomes wedged, as with a simple cone. The needle probe has the same quick expansion just back of the point, which is sharper than that of the dilator.

The advantages of this method are the avoidance of cicatricial contraction about the lacrimal puncta, and the preservation of capillary and siphonic action, thus directing the current of lacrimal drainage toward the nasal orifice. A repetition of this procedure is seldom required, and the repeated use of probes is thus avoided.

When, however, blennorrhea of the sac, lacrimal abscess, or marked caries is present, incision should be promptly made, rapid dilatation performed, and a lead style inserted. This should remain for a week, and be followed by lacrimal irrigation.

In very exceptional cases of corneal infection it may be necessary to prevent the regurgitation of these septic secretions by sealing up the lacrimal puncta with the galvanocautery point, or with a crossed suture.

In cases of simple and phlyctenular ulceration of the cornea the treatment to be employed is somewhat similar. A mild,

soothing lotion should be freely applied to the eye, consisting of

Sodium biborate, 32 gm. (5 gr.);
Boracic acid, 65 gm. (10 gr.);
Rose water,
Distilled water, of each, 30 Cc. (1 fl. oz.).
Drop in the eye freely four times a day.

If the iris is at all sluggish atropine should be instilled. If the pupil dilates freely the further use of atropine should depend on circumstances. Calomel, or iodoform with compound stearate of zinc, may be insufflated or used in an ointment. Hot stupes for ten minutes three times a day may be beneficial. A pressure bandage is occasionally useful, but should be closely watched, as the added warmth may increase the bacterial growth.

FEMORAL HERNIA—RADICAL CURE.

The following method of operating NICOLL (*Scottish Medical and Surgical Journal,* December, 1903) originally adopted for the more severe and unfavorable cases of femoral hernia only, but has come to regard the precision of the closure effected by it as sufficient inducement to extend its practice to all cases.

The hernial sac is exposed by either a vertical or transverse incision; the sac is freed from the surrounding tissue; it is then split longitudinally in its middle line and emptied of its contents. The neck of the sac is freed from the transversalis and the iliac fasciæ for one inch around the abdominal aspect of the ring. The sac is then bisected longitudinally from fundus to neck, and an aperture is made in one half near the neck, through which the other half of the sac is inserted, thus interlocking the two halves. The whole sac is reduced through the femoral ring into the extraperitoneal space previously cleared out for it by detaching its neck from the abdominal aspect of the ring. Where the sac is unnecessarily large, part of it may be cut away before reducing it through the canal. An incision is then carried down to the bone from the femoral vein along the pubic ramus to the region of the pubic spine. This divides the pubic portion of the fascia lata, the origin of the pectineus and the periosteum. The periosteum is next reflected to a limited extent. Two drill-holes, one-half inch to one inch apart, are made in the upper edge of the pubic ramus. A loop of stout catgut is passed through one of these drill-holes and the loop is divided. Each end is then passed as a mattress suture through Poupart's ligament, and both ends are brought out through the second drill-hole. Each loop is tied separately over the front of the bone, thus bringing Poupart's ligament down to the posterosuperior surface of the bone and fixing it firmly in this position, constituting what is in effect an extension outward of Gimbernat's ligament, and absolutely closing the femoral ring to whatever extent may be desired. The degree of occlusion is regulated by the position of the sutures in Poupart's ligament, the sutures being tied firmly in all cases. The closure is made doubly secure by uniting the detached margin of the pectineal fascia and the pubic portion of the fascia lata to the anchored Poupart's ligament.

EXCISION OF THE PROSTATE AND PROSTATIC URETHRA FOR SENILE ENLARGEMENT OF THE PROSTATE.

During the last two years MOYNIHAN (*Annals of Surgery,* January, 1904) has operated upon a series of cases, twelve in number, of senile enlargement of the prostate and prostatic urethra. Of the twelve cases, one proved fatal. The patients varied in age from fifty-nine to eighty-eight years. In four of the patients a stone was found, and upon one of these patients suprapubic operation had been performed for stone fourteen years previously.

The operation is performed in the following manner: The bladder is irrigated thoroughly with one-per-cent solution of carbolic acid, and finally filled with ten or twelve ounces of this fluid. A rubber glove is worn on the right hand, so that after the rectal manipulations are over the removal of the glove will leave a clean hand with which to continue the operation. The bladder is opened above the pubes, and the left forefinger introduced. The solution is allowed to escape from the bladder, and silkworm-gut sutures are passed through the whole thickness of the abdominal

wall and through the cut edges of the bladder. They are tied and left long, thereby fixing the bladder to the abdominal wound and preventing any undue tearing or stretching of the bladder by the subsequent manipulations. The sutures are not removed until the third day, by which time the bladder will be found firmly fixed to the posterior surface of the parietes. With the left forefinger in the bladder, a snip is made with a pair of sharp-pointed scissors in the mucous membrane of the trigone, immediately behind the internal meatus. The tip of the finger then deepens and gradually enlarges this small opening, until the mucous membrane is felt to be loosened a little. Two fingers of the right hand are passed into the rectum, and between these and the thumb pressed into the perineum the prostate is held firmly, while with the left forefinger the stripping of the prostate is commenced. The surface of the lobes is cleared rapidly, the opening in the mucous membrane is torn larger, until it completely surrounds the meatus, and finally the anterior portion of the prostatic urethra at its junction with the membranous portion is torn through, after the prostate is elsewhere entirely free. The enucleation is performed easily and rapidly as a rule, in from two to five minutes. The larger the prostate, the easier the stripping. The fingers of the right hand are now removed from the rectum, the glove stripped off by an assistant, and a pair of volsella forceps passed into the bladder to seize and remove the loosened prostate. There is very little bleeding as a rule, though in two instances there was free hemorrhage for twenty to thirty minutes. A catheter is passed and the bladder freely flushed with a hot solution of carbolic acid. It is astonishing to note what a very small gap seems to be left in the base of the bladder.

There are often severe pains, paroxysmal in character, for a few hours after operation, and the patient frequently complains of an insistent and compelling desire to pass water. A morphine suppository or hypodermic injection of morphine will give comparative ease. At the end of forty-eight hours the tube is removed from the bladder, and on the fourth day, and on each succeeding day, a catheter is passed and the bladder is washed freely with diluted carbolic acid. On the seventh day the catheter is tied in, and a drag is placed on the suprapubic wound. Every morning the drag is removed and the bladder again flushed. The catheter is not removed for five or six days, and a new one is then introduced. The urine ceases to pass through the wound about the end of the third week, and by the end of the fourth week, or occasionally not until the end of the fifth week, the patient is able to pass urine spontaneously, at natural intervals, without discomfort or difficulty, and the wound is entirely closed.

If there has been cystitis, urotropin or helmatol should be given, in 10- to 15-grain doses, three or four times daily. In two cases where the cystitis had been excessively severe, and the urine most foul, after the bladder had been washed out a stream of oxygen was passed through the catheter, and the bladder flushed out. Over the suprapubic wound a tight-fitting, impervious cap was placed, having a small leak to allow the escape of gas. In this way the healing of the wound was certainly hastened.

It is a serious matter to keep these old patients in bed. They should be allowed to sit up within two or three days after the operation, and they should be hedged around with every care and comfort.

CHORDEE PREVENTED BY PROSTATIC MASSAGE.

PETERKIN (*New York Medical News,* Dec. 26, 1903) claims that massage of the prostate and seminal vesicles is an efficient method of preventing erections, by relieving overdistention. As a result the pain of chordee is obviated, and congestion, a predisposing factor to the further extension and continuance of the gonorrheal infection, is lessened.

Before applying massage the patient voids his urine, and the anterior urethra is irrigated thoroughly through a short nozzle with some mild antiseptic solution, after which the bladder is filled with the same solution. The solution in the bladder mainly serves the mechanical purpose of cleaning the posterior urethra before and after massage, and acts as an aid to massage by distending the bladder so that when pressure is brought to bear

upon it, with one hand, the prostate is brought nearer the massaging finger.

Usually one or two such treatments a week is sufficient.

ACUTE OTITIS MEDIA TREATED BY ASEPTIC DRAINAGE.

The principles of treatment of acute otitis media by aseptic drainage as given by GRADLE (*Journal of the American Medical Association,* Jan. 2, 1904) consist of paracentesis as soon as the diagnosis is made, and continuous absorption of the discharge by an aseptic gauze drain in the meatus and a large dressing over the auricle. After sterilization of the meatus and auricle by means of carbolic acid solution the sterility of the gauze is assured by a liberal use of powdered boric acid in the dressing. The external gauze dressing is changed as soon as moisture shows, while the tampon in the meatus may be left twenty-four to forty-eight hours at a time.

Among seventy-eight cases treated by Koerner, the time required for healing was seven days after paracentesis done on the first day; nine days after paracentesis done on the second day; and up to twenty-six days after paracentesis done on the sixth day or later.

The proof of efficient treatment is afforded by the character of the discharge. In cases in which the drumhead is tapped earlier than forty-eight hours after the onset, a clear fluid always is found. By means of a properly absorbent gauze dressing reaching to the drumhead and changed sufficiently often to remain absorbent and sterile, this serous discharge can be kept serous; its change to a purulent fluid is due to a faulty technique. No other treatment prevents the discharge from becoming purulent except in the mildest cases.

The author's invariable experience has been that after the climax in the amount of discharge, within the first thirty-six to forty-eight hours, the secretion diminished steadily and progressively to an uneventful recovery, provided due care was taken to keep it serous. The length of time in some forty cases in which the method was employed varied from five to twelve days in the majority, but exceptionally ran to fifteen.

If through any neglect the discharge becomes purulent, this progressive improvement is interrupted, as noted by the unchanged rate of secretion, and hence longer duration, greater discomfort, and possibility of mastoid complication. In cases of purulent discharge due to late perforation, or insufficient care in the changing of the dressing, gauze drainage has proved as satisfactory as any other mode of treatment.

BRONCHOSCOPY.

Direct observations of the larynx and trachea are recent and rarely used methods. Kirstein first showed direct laryngoscopy, from which originated direct tracheoscopy, and finally Killian developen bronchoscopy. With straight tubes of different calibers and lengths he showed that the air-passages could be explored far beyond the bifurcation of the trachea. An electric light fixed to the bronchoscopic tube is very useful, but it is not absolutely necessary, as shown by a case reported by SCHWYZER (*Annals of Surgery,* February, 1904), in which the greater part of the examination was made with a common search-light and a common head mirror. While it was not as convenient, the light was good and sufficient.

The bronchoscopic tubes are connected with a solid handle, with which quite a little force can be used in turning the bronchoscope into the desired direction. Sponge-holders, a fine suction tube, some hooks, and several kinds of forceps constitute the armamentarium. The instruments are as well adapted for esophagoscopy. The examination can be done either directly through the mouth and larynx (the tubes being up to 50 centimeters long), or through a tracheotomy wound. The head has to be thrown far backward, so as to allow of introduction parallel to the axis of the tube.

In the writer's case, a woman forty-eight years of age had inspirated a piece of bone five weeks previously. A large goitre prevented bronchoscopic examination through the mouth and larynx. A strumectomy was performed as a preliminary operation, and the wound was closed, except for a small central opening, through which a strip of iodoform gauze was introduced down to the trachea.

Two weeks later the trachea was opened by an incision 2 centimeters long, the lower end of which was 3 centimeters above the manubrium sterni. After making the incision the trachea was anesthetized with a solution of 20-per-cent cocaine in 1:10,000 adrenalin. The tube employed measured 15 centimeters in length, and had a calibre of a No. 24 bougie. The tube was inserted into the trachea and the bifurcation was made visible. There was much lively and even violent pulsation going on around the bronchi. This everlasting motion and activity in the chest was very impressive and led to the utmost care in handling the instruments. The pulsation was transmitted from the arch of the aorta, which rides on the left bronchus, and from the pulmonary arteries, which are in even closer proximity to the bronchi. The motion is most pronounced in the left bronchus, and is not perceptible far down in the right bronchial tree. Toward the periphery, respiratory motion comes more into play. There is room for the respiratory exchange of air around the bronchoscope, although lively breathing goes on through the tube.

Examination showed that the foreign body was not lodged in the left bronchi of the first and (most probably) second order. The bronchoscope was partially withdrawn and introduced into the right bronchus, which was found to be reddened and contained much mucopurulent secretion. These changes served as an important guide. After following the right bronchus to its end, the tube being introduced for the distance of six inches from the tracheal opening, a foreign body was discovered, grasped with forceps, and removed. It was surprising to note how readily the exploring tube could be introduced into the different bronchi. The bronchi give way to pressure and take a straight course over the inserted instrument because they are in loose, soft lung tissue which yields readily. When the division of a bronchus is reached, tilting of the bronchoscope allows the entrance into the desired side, and as soon as the channel is entered the tube may be pushed forward, if it is done under constant control of the eye.

In the writer's case the patient located her pain to the left of the heart apex region, but moist râles of medium size over the right lower anterior portion of the chest, and there only, served as a clue to the location of the bone. The patient was able to leave the hospital three days after the operation.

While such operative measures are not in the reach of every general practitioner, the surgeon who can do a fairly satisfactory cystoscopic examination in male patients, or even in women, is sufficiently skilful to handle Killian's tubes for the inferior bronchoscopy. The use of straight tubes *per vias naturales* into larynx and trachea is a hard ordeal for the patients in most cases. Inferior bronchoscopy, however, is not as heroic a measure as it might appear.

Where it is possible, bronchoscopic examination ought to precede the removal of foreign bodies from the bronchi, and the manipulations and the extraction ought to be done under the guidance of this instrument, thereby avoiding unnecessary injuries. In the more difficult cases the bronchoscope will be the only means of accomplishing a successful extraction.

THE PREVENTION OF POSTOPERATIVE HERNIA.

WINSLOW *(Annals of Surgery,* February, 1904) has made a careful study of the anatomy of the important structures of the abdomen, and the various modes of approximating these structures in the closure of abdominal incisions in order to prevent or cure hernia of the belly wall.

As a result of his study he formulates the following conclusions: (1) The aponeurotic coverings are the chief supporting structures of the abdominal wall; (2) their approximation by overlapping, in doubling the strength of the aponeurotic layers, doubles the strength of the abdominal incision; (3) it is wiser to prevent hernia by employing this principle of closing all abdominal incisions than to be forced to use it later to cure postoperative hernia.

The following technique is employed for the prevention of abdominal herniæ after incisions made in the middle line or for attacking appendix, gall-bladder, etc.:

The integument and subcutaneous tissue are incised down to the aponeurosis. The aponeurosis is bared by reflecting back the skin and fat for a space of an inch and a half on each side of the in-

cision. The aponeurosis is incised in the same line and directly beneath the skin incision, and two flaps, one on each side of the incision, are raised from the underlying muscle by blunt dissection. One flap of aponeurosis is freed for an inch or so from its cut margin; the other for about half that distance. The incision through the rest of the abdominal wall is completed as usual. In closing, the peritoneum is approximated by a continuous suture. It may be wise in weak, fatty walls to introduce two or three retention sutures placed well back from the margins of the wound and penetrating all layers above the peritoneum. The muscle, if well developed, is coapted by interrupted sutures. Then the cut edge of the aponeurotic flap, which was but slightly freed, is stitched to the base of the opposing flap by interrupted or mattress sutures. The free margin of the opposing flap is lapped over the other one and stitched down to the surface of the aponeurosis by interrupted or continuous sutures. A drain of gauze wrapped about with rubber tissue, or a roll of rubber tissue alone, leading from the lower angle of the wound, should be inserted between the fat and aponeurotic layer in cases where there has been much manipulation or where the adipose tissue is thick. The skin may be coapted with the Michel clamp, buried silver wire, or other suture. The retention sutures are of silkworm-gut; medium catgut is used for the lower layers, plain in the case of the peritoneum, chromicized for the muscle and aponeurosis. The retention sutures, if used, are employed merely to support the wall until the dangers of vomiting and meteorism are passed and union has begun.

TOXICITY OF COCAINE DIMINISHED BY THE ADDITION OF ADRENALIN.

By adding a 1:1000 solution of adrenalin to ½-per-cent solution of cocaine, in the proportion of ten drops to ten cubic centimeters, Foissy (*Tribune Médicale*, Dec. 12, 1903) found that the toxicity of the latter was greatly reduced, while its anesthetic and vasoconstricting powers were materially increased. In 149 cases in which 2 to 10 cubic centimeters of this solution was employed for local anesthesia in inflamed tonsils, no sign of poisoning was ever observed, while similar doses of cocaine alone frequently caused pallor, sweating, loquacity, muscular tremors, and even delirium, though no serious results.

In experiments on guinea-pigs the writer was able to inject eight to fifteen times the toxic dose of cocaine, when thus combined, without fatal results or even serious symptoms.

OLD DISLOCATIONS OF THE SHOULDER.

Keetly (*Lancet*, Jan. 23, 1904) states that the usually accepted limit for even attempting reduction of a dislocated shoulder is three months. The symptoms of an old, unreduced dislocation differ in some respects from those of a recent one; instead of swelling there is wasting of the deltoid, and the absence of the head of the humerus in the glenoid fossa is very obvious. The projection of the elbow from the side is less, and the range of movement of the joint and of the scapula on the trunk is increased. The *x*-rays are often useful in making a diagnosis.

If no complications coexist the prognosis of dislocations two to four weeks old is absolutely favorable; up to the ninth week very good; after the ninth week bad, unless a cutting operation be performed.

The administration of chloroform in these cases is especially dangerous. Either no anesthetic should be used, or the patient should be fully under its influence before reduction is attempted. The anesthesia should never be pushed during the operation. If the breathing stops while strong traction is being made, the surgeon should desist at once.

The axillary vessels are often injured, as many of these patients have diseased vessels due to advanced age, dissipated habits, etc. Nerve injuries are comparatively rare.

The choice of treatment in the old cases lies in making the best of the new abnormal joint by exercise, massage, and the attempt to effect reduction by manipulation and extension, open operation, or excision.

Reduction without cutting may be tried reasonably up to the fourth month, except in old people with atheromatous arteries.

If Kocher's method fails, extension and

circumduction may be tried with Skey's knob, or the author's fracture extension machine. The structure especially endangered is the axillary artery. Another method of extension is continuous and elastic extension by means of air pads in the axilla, and Stimson's couch, which is perforated to allow the arm to pass through, a ten-pound weight being attached to the hand.

It is difficult to preserve asepsis in open operations because the operation is prolonged, the wound is large and deep, the traction is forcible and prolonged, the displaced head vacates a large space which does not fill up, drainage is contrary to gravity, several assistants are required, there are numerous chances of infection, and the patients are usually "bad subjects."

When it is found necessary to excise the humeral head, the stump should be wrapped in gold leaf for a few weeks, to prevent adhesions; the shoulder should then be opened and the gold leaf removed. After the wound has healed passive movements should be begun, but abduction should be avoided for months.

CONGENITAL PHIMOSIS—NON-OPERATIVE TREATMENT.

ROJANSKI (*American Medicine,* Jan. 30, 1904) makes a plea against the indiscriminate use of the knife for congenital phimosis. Circumcision, excision, incision, are all in use, but the same results can be obtained by bloodless treatment. His own method is outlined as follows: The mother is instructed to irrigate the preputial sac with a weak antiseptic, preferably a two-per-cent solution of boric acid, or in the presence of congestion or irritation, lead-water may be substituted. These injections are given from two to three times daily by means of an ordinary rubber ball syringe holding half an ounce of fluid. The tip is inserted into the sac and the contents slowly forced out, distending the prepuce. After two to three weeks of such treatment the prepuce can be retracted almost behind the glans. At this stage a dull probe is introduced between the glans and the prepuce and the remaining adhesions are gently loosened. The cure is now complete, and may be made permanent by continuing the irrigations some time longer in order to prevent the formation of fresh adhesions.

TUMORS OF THE RETROCAROTID BODY.

There have been recorded only eleven cases of tumors of the retrocarotid body, previous to one recorded by RECLUS and CHEVASSU (quoted in the *Medical Chronicle,* December, 1903). Their etiology is as obscure as that of tumors in general. They are met with in young adults, the ages of the patients varying from seventeen to thirty-three years. Normally the carotid body increases in size from birth until puberty, when it commences to atrophy, and von Heinleth considers these tumors as due to a persistence of the original growth after puberty—that is, that they represent merely an exaggerated condition of the normal carotid gland. Anatomical, histological, and clinical evidence, however, negative this hypothesis. Recent researches have shown that the carotid body is situated ***behind*** the bifurcation of the common carotid, and not between the origins of its two great divisions; it is therefore "retrocarotid" and not "intercarotid" as formerly designated. Its upper portion is always more intimately connected with the internal than the external carotid vessel, and it is enclosed in a dense fibrous sheath common to it and the bifurcation of the vessel. As it increases in size the gland grows forward between the two great branches of the common carotid, and expands into a mass situated in front of the bifurcation, giving these tumors a characteristic dumbbell shape. Their consistence is rather soft and elastic, their color resembles that of the thyroid gland, and they have a complete capsule. The arteries are lodged in grooves, which may be of such a depth that the vessels appear to be surrounded by the neoplasm. The vessel walls are unaltered, their caliber remains the same, and their branches arise as usual. The internal jugular vein was firmly adherent to the posterior part of the tumor in six instances, likewise the vagus in three, the sympathetic in two, and the hypoglossal in one. Glandular invasion by the growth has only occurred in one case.

Microscopically, the appearances in all the cases have been similar, the tumors belonging to the class of endotheliomata. The existence of the tumor is discovered by chance, and it has usually been looked upon at first as an enlarged gland. It

forms a swelling in the side of the neck at the seat of the carotid bifurcation, the overlying skin preserving its normal characters, and the anterior border of the sternomastoid crossing its superficial aspect obliquely. It pulsates synchronously with the pulse, but there is no true expansile pulsation—merely a simple elevation of the tumor by the underlying vessels. The tumor is freely movable in a transverse axis, scarcely, if at all, in the vertical direction. Auscultation yields a bruit, which is not different from that audible in the common carotid below the tumor.

Its growth is slow, and eight out of the eleven cases were not operated upon until four to sixteen years from their first being noticed. As a rule they are benign tumors; of the eleven cases, eight were certainly so; two were doubtful; and only one was certainly malignant. All were submitted to operation, but in only three was it possible to remove the growth without sacrificing the carotid bifurcation. Of the eight in which this was carried out, two died, one from hemorrhage and one from bronchopneumonia, a mortality of 25 per cent. Of the six recoveries, in one hemiplegia with aphasia supervened on the fifth day, and the others all had some permanent ill effect left—paralysis of the vocal cord, of half of the tongue, of the sympathetic, etc. These results absolutely condemn resection of the large vessels and nerves of the neck for tumors of the retrocarotid gland, and as it is impossible to ascertain beforehand which tumors will be capable of dissection, the writers advise that operative interference should only be attempted when the tumor causes serious functional troubles or shows signs of becoming malignant.

SOME COMPLICATIONS OF ARTIFICIAL ANUS.

A frequent complication of artificial anus, according to GERAUD (quoted in the *Medical Chronicle,* December, 1903), especially when established surgically, is a prolapse either of mucous membrane only, or of the intestine itself. The former is aided by the laxity of the submucous tissue, and is at first easily reducible, but difficult to maintain reduced. Its surface becomes chronically irritated by contact with the clothing or with the dressings, thickened from chronic lymphangitis, and superficially excoriated. Prolapse of the intestine may be single or double, according as one or both ends of the bowel become everted through the artificial anus. A single prolapse consists of two cylinders of intestine, the outer having its mucous membrane external, the inner internal, while the two serous coats are in apposition. Adhesions between these latter render the prolapse irreducible. The margin of the artificial anus is indurated, contracted, and undilatable, and may become an agent in producing strangulation of the prolapsed bowel. The greater the contraction the less chance will there be of the occurrence of a prolapse, but the greater the risk of its strangulation.

In a single prolapse there is only one opening for the escape of feces, seated at the apex if it be the upper end of the intestine which has become everted, at the base in the case of the lower end. When the prolapse is double either of two conditions may be present: (1) when the bowel has been divided transversely to form the artificial anus and both ends fixed in the wound, a prolapse may occur from each end, each being distinct from the other and diverging from it; (2) the eversion of the two ends may constitute a single cylinder, parallel to the abdominal wall, to which it is connected by a short pedicle, giving it the appearance of the letter T. An orifice is present at each end of the horizontal branch. This form of prolapse only occurs when the artificial anus involves the wall of the gut opposite to the mesenteric attachment.

The chief complications to which a prolapse is liable are irreducibility, ulceration, strangulation, and very rarely the occurrence of a hernia of small intestine between the two cylinders constituting the prolapse. In establishing an artificial anus, the chief points to prevent a subsequent prolapse are: (1) to injure the structures of the abdominal wall as little as possible; (2) to make the smallest opening in the parietes that will suffice; and (3) to suture the bowel carefully to the margin of the opening. When a prolapse is fully established, it is best to resect the prolapsed bowel flush with the abdominal wall and fix it to the margin of the artificial anus, as in the procedure of Mikulicz for rectal prolapse.

TYPHOIDAL PERFORATION OF THE BOWEL—SURGICAL TREATMENT.

CAZIN (*La Semaine Médicale,* No. 1, 1904) found on record 358 cases of perforation of the bowel in typhoid fever in which operation was performed. The list includes one from his own experience and Keen's 158, as also statistics of Mauger, Cariès, Junqua, Pédarré, and Elsberg. Of the entire number, 107, or 29.88 per cent, recovered, and 251, or 70.11 per cent, died. Only 49 were reported in France, with 40 deaths and 9 recoveries. The Americans lead in their intrepidity and promptness in operation. Of the 358 cases, 228 were intestinal operations; in 130 the abdomen was opened and drained.

In making a diagnosis great stress should be laid on sudden pain, boardlike hardness of the abdominal wall, and dulness; irregular small pulse and fall in temperature are also important. Leucocytosis is of secondary importance, as it is very inconstant and tardy.

If an error is to be made it were better to make it on the side of operation, as this is not necessarily fraught with ill results; the operation should be performed at least as soon as the diagnosis is made. In 48 unsuccessful cases the time intervening between perforation and operation was mentioned; in 38 operation was performed during the first twenty-four hours, in 6 on the second day, and in 4 on the third day. General narcosis seems to have been preferred to local anesthesia, and usually a relatively small quantity of the anesthetic was necessary. In 219 cases the site of operation was mentioned; 123 times a lateral incision and 26 times a median incision was made. The perforation usually is located in the lower 50 centimeters of the ileum; occasionally the appendix, cæcum, or colon is affected. A Lembert silk suture is preferable to catgut; the latter is absorbed too quickly, and by giving way has produced fatal termination. It is not necessary to freshen the edges of the perforation or resect the ulcerated zone, as this prolongs the operation unnecessarily. The sutures should be passed through tissue some distance from the border of the perforation on account of the great friability of the structures. Two layers of suture usually will secure perfect occlusion. If further perforation is threatened around the ulcer, packing strips of gauze around it to wall off infection is better than resection of the bowel. In diffuse peritonitis the abdominal cavity should be rinsed with hot saline solution. Sufficient drainage should be inserted in all cases.

TREATMENT OF PERINEAL LACERATIONS.

HEGAR (quoted in *Medical News,* Jan. 23, 1904) speaks strongly against the firmly rooted custom of suturing tears at once or soon after the termination of labor. An analysis of a large number of cases proves that postpartum fever is more common in these cases, and removal of the stitches often will be followed by a rapid fall of temperature. Waiting twenty-four hours is worse, since the lochia are more infectious and the patient is disturbed in her much needed rest. It is not commonly known that the functional results are excellent in 77 per cent of the cases where the healing is left solely to nature. Sometimes the wound edges are not accurately apposed, leading to slight distortion, which does not interfere in any way. Suturing, however, may be done where the wound is simple and without contusion or infiltration, and where the general condition is good and strict asepsis can be practiced. In other cases it is better to wait three months.

RADICAL CURE OF INGUINAL HERNIA.

In children, especially when the hernia is of the congenital variety, BEGOUIN (quoted in the *Medical Chronicle,* December, 1903) believes it is sufficient, after separation and ligation of the neck of the sac and returning the stump, simply to bring the pillars of the external ring together with a few catgut sutures. In adults, however, some care must be expended upon the restoration of the abdominal wall. While admitting that Bassini's method yields excellent results, the author considers that it occupies a considerable time in its performance, that it is a very delicate procedure, and that it is possible to obtain results as good or better by simpler means. Bassini's operation respects the normal conformation of the inguinal region to too great a degree, since he allows to remain for the passage of the cord a canal with two openings, whereas a single simple orifice

is all that is actually requisite. The author advocates a form of procedure which he associates with the name of Mugnai, in which, after treating the sac as in Bassini's method, the cord is relegated to the lowest part of the wound, the internal oblique and transversalis muscles and the conjoined tendon are sutured to Poupart's ligament, and the cut edges of the external oblique aponeurosis are sutured together over these, leaving just sufficient room at the lower and inner angle to allow of the exit of the cord. Thus the inguinal canal and deep inguinal ring are suppressed, and the cord passes out directly at the site of the superficial inguinal ring—a very resistant site, surrounded by solid and inextensible fibers. This operation is much simpler than Bassini's, and can be performed much more quickly.

EPIGASTRIC HERNIA.

GREENE-CUMSTON (quoted in the *Medical Chronicle,* December, 1903) defines epigastric hernia as that which develops in any part of the linea alba between the umbilicus and the xiphoid cartilage. The statistics of Berger show its frequency to be 1.37 per cent of all cases of hernia; it is much more frequent in the male sex and in the working classes, and it is not uncommon to find more than one hernia in the same subject. Etiological factors are injury, a diastasis of the recti abdominis, congenital or acquired, and the development of subperitoneal lipomata. These latter separate the interlacing fibers of the linea alba, and thus allow the formation of a hernial ring; and as they remain connected to the peritoneum by a kind of pedicle they exercise a constant traction upon it, and tend to draw it into the hernial ring, thus forming a hernial sac. The lateral angles of the ring are at first more or less acute, while the upper and lower are obtuse, giving it the shape of a lozenge with the long axis horizontal; later, however, the form becomes more oval. The hernial contents usually consist of omentum, occasionally of the small intestine, rarely the large intestine, and very rarely the stomach.

The symptoms usually associated with epigastric hernia are difficulties of digestion, constipation, vomiting, and intermittent pains, the latter due, in all probability, to the traction exerted by the contained omentum upon the colon and stomach. Strangulation is not a common complication of epigastric hernia. Relief of symptoms up to a certain point can be given by the wearing of an abdominal belt, but the only method of radical cure is by an operation involving removal of the subperitoneal lipoma, with separation of the sac, ligation of its neck, and obliteration of the hernial ring.

USE OF ATROPINE IN INCARCERATED HERNIA.

HAGEN (quoted in *Medical News,* Jan. 23, 1904) has discovered that the physiological activity of atropine will readily explain the efficiency of this drug in incarcerated hernias, if the pathology of these be considered. In every incarceration there is a paresis of the musculature of the intestinal loop, accompanied by a reflex tetanic irritation of the external oblique muscle. Since atropine first stimulates muscles supplied by sympathetic nerves, it will tend to overcome the paresis; its subsequent paralyzing action will then be directed against the tetanus of the abdominal muscle. The author proceeds as follows: Half a cubic centimeter of a 1:1000 solution of atropine sulphate is injected into the neighborhood of the hernia; if this is effective the dose is repeated every hour; if not, double the dose is injected and a gentle attempt at taxis is made. After six to eight hours a laparotomy is indicated if vomiting continues, and the pulse and facial expression do not improve. It will be possible to save many patients from operation, and the method demands an extensive trial, especially in the aged, where the mortality is unusually high.

EXPLORATORY HYSTEROTOMY.

The methods of intra-uterine explorations are sufficient for most cases, but there are instances where a direct inspection of the mucous surface of the uterus is of paramount importance. Many conditions produce hemorrhagic metritis, but the lesion cannot be diagnosed accurately without opening the uterus and making a direct examination. Thus might be found a polypus, or an easily enucleated fibroma, and the condition could be cured

with but slight interference. An examination of the uterus after hysterectomy has repeatedly shown a lesion which could have been easily removed by other means. LEJARS (*Semaine Médicale,* No. 2, 1904) describes his technique for the operation as follows: The cervix is drawn down as for vaginal hysterectomy, the vaginal cul-de-sac is opened, and the peritoneal covering stripped back. The neck is opened in the anterior median line, thus avoiding bleeding, and the incision is carried beyond the internal os to expose the interior of the uterus. The finger then can be easily employed to explore the uterine cavity, and the mirror can be used to control these findings. If necessary the operation is continued by removing the cause of the disease; if not, the uterus and vagina are sutured.

SYMPATHETICECTOMY.

Of eight cases of obstinate optic nerve atrophy reported by BALL (*Journal of the American Medical Association,* Jan. 30, 1904) in which sympatheticectomy was performed, there were four failures and four improvements. At the present time it is impossible to decide whether or not bilateral resection should be done for unilateral atrophy.

Four patients, varying in age from two and a half to nine years, who had congenital hydrophthalmos were treated by operations on the cervical sympathetic. The tension was uninfluenced, and the vision so far as could be determined in such young subjects was unchanged.

The mortality of thyroidectomy for exophthalmic goitre is about 20 per cent. Kocher's recent statistics are very favorable. He performed 59 thyroidectomies; 45 were cured, 8 were improved, 2 were slightly improved, and 4 died. The danger of sudden death after thyroidectomy is emphasized by Starr. Of 190 cases not less than 23 died suddenly.

In exophthalmic goitre complete excision of the cervical sympathetic is followed by a larger percentage of cures than is any other procedure. Thus far no deaths have been attributed directly to the total excision of the cervical sympathetic. The results are 63.8 per cent of cures, 18.1 per cent of improvements, 18.1 per cent of failures, and no deaths. The number of operations is small, however, and final conclusions cannot be safely drawn at present.

INFECTIOUS OSTEOMYELITIS.

A careful study of eleven cases of infectious osteomyelitis reported by NICHOLS (*Journal of the American Medical Association,* Feb. 13, 1904) seems to justify the following statements in regard to the treatment of the affection:

1. In the acute stage of osteomyelitis, drainage of abscess in the soft parts alone is not sufficient. The bone-marrow is infected and must be drained. Removal of a sufficient amount of cortical bone alone is all that is required to give perfect drainage to the bone-marrow. Curettage and disturbance of the marrow cause extensive destruction of the endosteum, which if left alone has, in a limited number of cases operated on early, sufficient power of regeneration to repair the bony defect without the formation of a sequestrum. Under those circumstances a very early operation is necessary.

2. In the subacute stage it is desirable to remove the necrotic shaft, completely or partially, at an early stage in order to take advantage of the power of regeneration of the periosteum. The periosteum either before or after the beginning of periosteal ossification has the power of regenerating a completely or partially removed shaft of bone.

3. For mechanical reasons the manipulation of the periosteum is easier after ossification of the periosteum has begun but while the membrane is still plastic. Moreover, the rapidity and surety of perfect regeneration seem greater at that time.

4. The operation consists of an incision through skin and ossified periosteum down to the necrotic shaft, reflection of the periosteum, removal of the shaft, either entire or partial, folding of the plastic periosteum in such a way as to approximate the internal layers, suture of the edges by absorbable sutures, suture of the soft tissues, with, in both cases, provision for moderate drainage and complete immobilization.

5. The success of the operation is greater when asepsis is provided for by careful drainage preceding the operation, and by careful removal of all infected

material and tissues at the time of operation.

6. After the removal of the necrotic shaft, well marked ossification of the new periosteal shaft appears between the twentieth and fortieth days, and the shaft is solid enough to use in locomotion in from four to eight months. If the epiphyseal line is extensively destroyed, considerable shortening of the limb may result.

7. The regenerating bone at first becomes much larger than the original shaft was, and is entirely composed of solid periosteal bone, with no marrow canal. In time the size of the bone decreases almost or quite to that of the original shaft, and finally, judging from *x*-ray photographs, a marrow canal is formed.

8. The chief difficulty in completing the restoration of the shaft is to obtain complete union of the regenerated shaft to the epiphyseal line or to the portion of the normal shaft that remains. Slight necrosis and suppuration may persist at this point after the repair otherwise is complete, and may demand minor operations to remove small fragments of necrotic bone. Union at these points may be delayed, but ultimately always has taken place.

9. The best time for the operation ordinarily is about two months after complete drainage of the acute infection.

10. This operation is the operation of preference, and is especially applicable when an accessory bone which can act as a splint is present.

11. The anatomic, functional, and cosmetic results obtained by this operation are much superior to those obtained in any other way in cases of large bony defects due to acute infection of bone.

12. Where no accessory splint bone is present it may be impossible, in special cases, to maintain the contour of the affected bone by the above method. In such cases advantage can be taken of the power of central growth possessed by the shell of periosteal bone in its early stages. This means that the necrotic bone must be removed just as soon as the periosteal shell is sufficiently advanced and solid to maintain contour and bear the weight of the limb. Roughly, this stage is reached when the thickness of the periosteal shell is equal to one-quarter of the diameter of the original shaft.

13. The time when this condition exists can be determined by *x*-ray examination and by palpation.

14. If the necrotic shaft is removed at this time it leaves a solid cylinder of periosteal bone, very vascular, but partly calcified, analogous to the bone seen in an early external callus, and this shell has sufficient power of central growth to fill up large cavities. The rate of central growth seems to be markedly slower than that of peripheral growth. Persistence of sinuses is longer than in the preceding method, partly from a delay of closure of the cavity, and possibly from a failure to remove small fragments of necrotic bone at the time of operation.

15. This method of operating leaves at first bone very much larger than the original bone, but, as in the preceding case, the bone ultimately diminishes in size and slowly approximates that of the original bone.

16. In the chronic cases more or less sequestrum surrounded by an enormously thick shell of dense cortical, more or less ivory-like, bone exists.

17. The power of repair of dense cortical bone is very slight or practically wanting. Removal of sequestra leaves a more or less extensive cavity in bone, surrounded by a wall of dense bone, lined with unhealthy granulations, which has no tendency to close.

18. The most satisfactory methods ordinarily recommended for the closure of such defects are the aseptic blood-clot, or obliteration of the cavity and approximation of skin flaps. The aseptic blood-clot aims to fill the defect with dense scar tissue, but does not lead to regeneration of bone, and requires for its success greater asepsis than ordinarily can be obtained in extensive osteomyelitis. The skin flap method may close the cavity, but does so at the expense of great bony destruction.

19. From one semisuccessful case, from a consideration of the general process of regeneration of bone by the periosteum, and the successful results obtained in the subacute cases, it seems likely that better results can be obtained by removal of both sequestrum and involucrum and the use of the regenerative power of the periosteum.

20. In removing a portion of the shaft under such circumstances the excision should be carried sufficiently far into the normal shaft to get above a medullary

canal, occluded by dense, ivory bone, and reach vascular marrow.

21. Finally, the most satisfactory results in treatment of acute osteomyelitis can be obtained by complete drainage of soft tissues and marrow in the acute stage, with the removal of extensive necroses, if they occur, at a secondary operation undertaken about two months later, and by adaptation of the regenerative power of the periosteum for the formation of a new shaft.

ACTINOMYCOSIS OF THE EAR.

REVIERE and THEVENOT (*Revue de Chirurgie,* 1904, No. 1) have observed a suppurative lesion about the structures of the left ear consecutive to an external otitis, in a man of thirty-six. The structures involved were the upper two-thirds of the sternomastoid, the tissues over the angle of the jaw, and the external ear. In the pus were discovered granules typical of the ray fungus. Recovery followed a thorough and extensive extirpation of the actinomycotic lesions. In two reported cases death resulted from an involvement of the middle ear and the meninges. The infection probably arises by way of the Eustachian tubes, and the only chances for recovery are prompt and thorough surgical intervention. The prognosis at all times should be guarded.

OVARIAN GRAFTING.

MORRIS (quoted in *Medical News,* Feb. 13, 1904) obtained the following results from experimental work on a series of rabbits: (1) When the ovaries are removed from an animal and then replaced at some point near the original site, or even at a distant point, the tendency is for the ovary to continue its function of secreting ova and furnishing internal secretion. Such a transplanted ovary may continue to do normal work for an indefinite period. (2) When ovaries are removed from one animal and transplanted to another animal of the same kind, which has had its ovary removed, the tendency is for the grafted ovary to undergo degeneration. The graft will continue to develop ova and furnish secretion for several months in some instances, but at the end of a year the grafts are often found useless and fatty. It is to be assumed that the serum of one animal is destructive to the introduced tissues of another of the same sort.

Several conclusions of a practical value have been deduced from this experimental work, and may be applied to modern surgery. For instance, if in a case of pyosalpinx it is necessary to remove the ovaries and oviducts *en masse,* a part of a fairly good ovary may be placed in warm saline solution until the remainder of the work is completed, and then this piece of ovary can be grafted beneath the peritoneum at some point near its original site before closing the abdomen, thus preventing premature menopause. This refers chiefly to grafting a piece of the woman's own ovary. With a piece of another woman's ovary the patient may menstruate for several months and have the benefit of the internal secretion. It may be possible for her to become pregnant before the graft degenerates, but thus far this has occurred only in rabbits, and very shortly after the graft was introduced.

In one patient who had congenital degeneration of the adnexa and had never menstruated, menstruation was established by ovarian grafting and continued for nearly four years.

The method employed by the author consists in putting a piece of an ovary into a pan of saline solution at the temperature of 100° F. until the operation is completed. A segment of ovary is then inserted through a slit in the peritoneum somewhere near its original site in such a way that the raw surface of the ovary is extraperitoneal, where it can be nourished by the lymph circulation until new capillaries are formed for its support. Part of the ovary is allowed to protrude into the peritoneal cavity, so that the ova may escape into the oviducts in case such a possibility exists. One or two fine catgut sutures serve to hold the graft in place.

PERITONEAL SALINE INFUSIONS FOR ABDOMINAL OPERATIONS.

The employment of saline infusion in the peritoneal cavity is not a novel suggestion, but has been the subject of many active discussions, for it has been as earnestly advocated by some surgeons as it was strongly condemned by others.

From a clinical standpoint CLARKE and NORRIS (*Journal of the American Medical Association,* Jan. 30, 1904) have studied this question very closely for the last five years, and have every reason to extend rather than to limit its employment. As a general working law it can be stated that the greater the leucocytosis within twenty-four to thirty-six hours after an operation, the more likely is the infection to be overcome. While the number of their cases has not been sufficiently numerous to warrant them in drawing well defined conclusions, they believe that when normal salt solution has been used, leucocytosis has been somewhat greater during the first twenty-four to thirty-six hours after the operation than in the cases in which saline was not employed.

In order to test the value of the normal saline solution they carried out a series of experiments on rabbits with a virulent culture of staphylococcus aureus. In the experiments two animals of approximately the same size and condition of health were selected. They were anesthetized, the abdomen was prepared for an abdominal operation, and a cannula was introduced into the peritoneal cavity without injury to the intestine. In one of the animals one-half cubic centimeter of bouillon culture was introduced, and the wound closed by a sealed dressing. In the other animal after the same amount of bouillon culture had been introduced, one hundred cubic centimeters of normal saline solution at a temperature of 110° C. was injected through the cannula. Twenty-five test rabbits and twelve controls were employed. The control animals all died, the average length of life being a little over thirteen hours. Of the twenty-five test animals, eleven (33 per cent) are alive and well. The average length of life of the test animals that died was 83 hours, as against 13 1-3 hours of the control animals.

From a clinical standpoint the authors disprove the assertion that the distribution of infectious matter in the peritoneal cavity is not only valueless but very dangerous, for in a series of 254 laparotomies in which infusions were very largely employed, only seven deaths occurred. Of the seven fatal cases, however, only one could be attributed doubtfully to the use of the saline infusion.

The authors present the following conclusions: The use of saline solution does not increase but unquestionably minimizes the dangers of pyogenic infection. In addition to the reduction of mortality, the convalescence of the patient is rendered infinitely more comfortable through the satisfaction of thirst, the increase of urinary secretion, and the minimizing of vesical irritation.

CALCULUS OF THE URETER.

TENNEY (*Boston Medical and Surgical Journal,* Feb. 4, 1904) has been able to add 33 cases of ureteral calculus since the publication of the 101 cases collected by Schenck in volume 10 of the Johns Hopkins Hospital Reports. Seventy-four of the patients were females and 58 males, the sex not being stated in two cases.

The location of these stones has been in a general way in one of three places, depending on the physiological narrowing of the ureter. The first point of narrowing is about 7 centimeters down, and has a diameter of 3.2 millimeters; the second is just above or below the brim of the pelvis, and has a diameter of 4 millimeters; and the third is at a point just above the bladder, and has a diameter of 2.5 millimeters. The number of stones in the series of 134 cases caught in the above locations corresponds very nicely in its diameters, 35 being caught in the first isthmus, 18 in the second, and 73 in the third. In the remaining cases the location was not given.

All statistics indicate that the danger of anuria decreases after the calculus passes the first constriction, and increases slightly after the calculus reaches the vesical end. Of the 134 cases 12 were relieved by procedures which did not involve a cutting operation, the calculus being discharged through the ureter naturally, or was extracted with forceps, or broken up with a lithotrite, after being pushed out of the orifice of the ureter. Of 122 cases upon which a cutting operation was performed, 98 recovered and 23 died, while in one the result was not given. Of the fatal cases 8 were operated upon while suffering from total anuria and 3 from partial anuria, making a mortality of 11 deaths in 21 cases, or 32 per cent operated upon for anuria.

Of 15 cases complicated by pyelitis, or

pyelonephrosis, 7 died, giving a mortality of 47 per cent. In one case the bladder was opened above the pubes and the ureteral orifice slit, opening into the peritoneal cavity; "the patient became maniacal; no urine on the tenth day; died on the thirteenth day; never had any fever, but an extremely rapid pulse." One case died of uremia, and autopsy showed cystic degeneration of both kidneys. One case was under chloroform anesthesia for nearly two hours, and showed fatty degeneration of the heart at autopsy. Another case also showed degeneration of the heart muscle at autopsy, after two hours of chloroform and ether anesthesia. In the remaining cases the cause and time of death are not stated. Of these 23 deaths the large proportion were unavoidable, whether the patients were operated upon or not.

Subtracting the 21 cases of anuria and the 15 cases of pyelonephrosis and pyelitis, there remain 85 cases operated upon for stone in the ureter, apparently without grave complications, and in which the results are stated. Of the 85 cases there were five deaths, giving a mortality of less than six per cent. Even this mortality rate is higher than it will be in the future as methods of operation improve, and operation is performed before secondary changes have taken place in the kidneys and general system.

The author urges the extraperitoneal route in performing nephrolithotomy. In those cases in which the stone is located in the lower portion of the ureter, some writers advise pushing the stone down into the bladder, but the small size of the constriction makes this suggestion difficult, if not dangerous, to carry out, unless the orifice be already dilated. There is so little danger in taking a calculus through the ureteral wall that it is wiser to remove it directly, with as little manipulation as possible, provided that it cannot be pushed up easily to a more accessible point. Extraperitoneal ureterotomies have been done thirty-four times, with five deaths. Three of the five were suffering with anuria when operated upon, one at autopsy showed cystic kidneys, and the fifth had a dilated and fatty heart.

The author presents the following conclusions:

Intermittent pain on one side, with varying amounts of blood in the urine, are constant symptoms of stone in the ureter.

Although it is the best means of locating the stone, the *x*-ray cannot give evidence sufficient in itself to warrant the surgeon in operating or refusing to operate in certain cases.

If the calculus starts from the kidney to the bladder it is likely to catch in one of three places, all of which are accessible to the surgeon through extraperitoneal openings.

A single calculus is the rule, but the exception occurs, according to these cases, about once in eight times.

The opening of the ureter or kidney pelvis for removal of the calculus should be sutured, if possible, with absorbable material, but non-absorbable materials have been used with equally good results, and wounds of the ureter and kidney pelvis apparently heal equally well. Recovery is only delayed if sutures are not used.

A calculus in the ureter is a menace not only to health, but to life, and its removal is an operation of low mortality, provided that it is undertaken before secondary changes have taken place in the kidneys.

WOUND INFECTION DUE TO SALIVA.

Every surgeon usually speaks during an operation, and it is therefore evident that drops of saliva must find their way into the wound, and the question arises whether this is dangerous to the patient and likely to cause infection of the wound.

De Léon (*Medical Press,* Jan. 27, 1904) has investigated this subject by speaking in front of agar plates, care being taken to prevent infection from air microbes. These plates proved that in speaking microbes are emitted from the mouth, and in operating multitudes of dangerous and infectious germs are projected into the wound. In every one of several hundred experiments, streptococci, staphylococci, diplococci, and aerial microbes were isolated. The writer estimates that nearly a quarter of a million dangerous microbes fall into the wound during the course of an operation in which the operator speaks only two hundred words. That the microörganisms were virulent was shown by the inoculation of forty-one guinea-pigs, fifteen white mice, and five rabbits. Of these, eight guinea-pigs and ten white mice died, and the

microörganisms were recovered from the liquid exudation in the peritoneal cavity as well as from the liver and heart.

The only way to prevent this danger is by mechanical means. Masks made of gauze are ineffectual. Speaking in front of plates through a single gauze mask resulted in seventy-five colonies of microbes on the plate, thirty-nine of which were streptococci; speaking with a double gauze mask, there were twenty-one colonies.

The author has devised a respirator which consists of double perforated metal plates between which is packed a small quantity of cotton-wool. This respirator when applied over the mouth does not interfere with speaking, though it does prevent the exit of dangerous microbes from the mouth, as shown by several experiments of speaking against agar plates, on which not a single colony of microbes developed.

WATER ANESTHESIA.

More than 150 cases of rectal affections radically operated upon by GANT (*Medical News,* Jan. 23, 1904) have shown that sterile water, properly injected, is a reliable anesthetic. He is convinced that this is the most desirable method for these operations, for the reason that it produces an adequate degree of anesthesia, while in no instance has its employment been accompanied or followed by any of the annoying and dangerous complications frequently met under the use of cocaine or similar drugs.

The only requirements are sterile water and a hypodermic syringe fitted with a long, fine, sharp-pointed needle, which with the syringe itself should be sterilized. When an incision through the skin is required, a fold of the integument at one extremity of the line of incision is compressed for a few moments between the thumb and forefinger; this diminishes or prevents the momentary pain which is caused by the first injection. The needle is then introduced between the layers of the skin, and a few drops of water slowly injected; immediately on the appearance of the small localized swelling thus produced, cutaneous anesthesia should occur at this point. Next the needle is slowly inserted further and further along the line of the cut to be made, care being taken not to go entirely through the skin, and the water is gradually injected as before. When the syringe is empty it is refilled and the needle reintroduced into the anesthetized area; the injections being repeated until the distention extends the entire length of the line of the incision. The needle is then plunged through this distended line, and subcutaneous injections are made rapidly until a firm, whitish, ridge-like swelling, about the thickness of the index-finger, is produced. The skin and underlying tissues can be incised now without pain in almost every instance. For external thrombotic hemorrhoids it is requisite to make the injection only between the layers of the skin overlying the clot to be removed, while in excising external cutaneous hemorrhoids both skin and tumors should be distended tightly. Large internal venous or capillary hemorrhoids may be anesthetized completely within thirty seconds by injecting directly into the center of each tumor sufficient water to distend it tightly and to cause it to turn white. Any affection which requires operative procedure to increase the lumen of the anal outlet, or which necessitates incision of the sphincter, may be operated upon under water anesthesia. After the skin and mucous structures up to the anal margin have been distended, injections are made into the mucosa, the submucosa, the external sphincter, and if necessary the internal sphincter muscle.

The author claims the following advantages for this method:

1. In the majority of rectal operations there is no necessity of subjecting the patient to the annoyance and expense of entering a hospital and undergoing general anesthesia.

2. The rapid distention of the tissues to be incised or removed enables the operator to work quickly, and as the patient is not confined to bed during the after-treatment, but can come to the office to be dressed, it economizes the surgeon's time and labor.

3. No annoying complications or sequelæ have been observed. It eliminates the danger to life from the heart, lung, and kidney complications, which may result from the use of ether or chloroform, and it avoids the increased pain

and hemorrhage due to straining and vomiting after general anesthesia.

4. Experience has shown that the pain and bleeding following this method are less than when medicinal local anesthetics are employed.

5. The only requirements are a hypodermic syringe, a suitable needle, and boiled water.

6. The radical treatment of hemorrhoids can be carried out so easily in the physician's office, and with so little danger and inconvenience to the patient, that it should relegate to oblivion the vaunted injection treatment, which is both dangerous and uncertain.

This method is not practicable for extensive operations, such as are required for excision of the coccyx, the removal of large tumors by excision, resection of the bowel, the relief of complete prolapsus recti, very extensive fistulæ, abscesses, strictures, congenital malformations, or other affections located in the upper rectum; neither is it applicable for opening the abdomen in cases where there is a thick layer of fat and the tissues are so loose and so flabby that a proper degree of distention cannot be secured.

If the pressure is quickly induced, by too rapid injection of the water, it may cause considerable temporary discomfort, amounting to pain in extremely sensitive subjects.

CICATRICIAL STRICTURE OF THE ESOPHAGUS TREATED BY DIRECT DILATATION.

The intelligent treatment by direct dilatation of cicatricial stricture of the esophagus presupposes a correct diagnosis. An important fact upon which too much stress cannot be placed is that gastrostomy in stricture of the esophagus is only a palliative operation. In the belief that direct dilatation with the attendant and consequent pressure absorption is at last the only real curative measure in strictures of the esophagus, EASTMAN (*Annals of Surgery,* February, 1904) has devised some new instruments, and believes that by their use a certain percentage of so-called impassable cicatricial strictures may be entered and dilated, and the use of ordinary esophageal bougies, laminaria pencils, and electrodes made possible.

Rectal alimentation and the use of a hernia pad after simple gastrostomy may give some aid in sustaining the declining patient, but a certain percentage of cases operated upon with a view to retrograde dilatation must succumb at length to starvation for the reason that after simple gastrostomy food is expelled with each descent of the diaphragm.

Gastrostomy may be useful as a step toward immediate retrograde dilatation of an impassable stricture, at or near the cardia, and for the establishment of a water-tight, valve-closed canal through which the patient may be fed, or while a stricture of the upper or middle portion of the esophagus is being opened by direct dilatation.

Gastrostomy, as a preliminary step in the application of such methods of treatment of gullet stricture as those of Ochsner and Abbe, is of course indispensable.

Children stand gastrostomy badly, and their nutrition through a gastrostomy tube is difficult. Contrary to the experience of others, the writer has found it easier to dilate esophageal strictures in infants and small children than in larger children and nervous and rebellious adults.

The extent of the stricture in the transverse and the long diameters is very variable. Often the passage is not only narrow but devious, and the lumen of the stricture may be displaced from the center of the esophagus so that the passage of instruments, except by chance, is often impossible. In strictures of this type a malleable or dirigible bougie offers a distinct advantage. With the usual forms of esophageal bougies and dilators the surgeon has no control over the position of the tip of the instrument. The writer has devised a malleable bougie to which can be given any desired curve, and the direction of whose tip may be controlled by the operator. The bougies are of spiral-wound steel wire, filed flat and smooth, and contain a withdrawable soft lead core. They are made in various lengths and diameters. The core is so soft as to practically eliminate the danger of perforation or trauma to the esophageal mucosa. The lead core makes it possible to determine the position of the sound while in the esophagus by the use of the *x*-ray.

A large sound of this type at times

may be passed readily through a strictured lumen which does not permit the entrance of very small, ordinary bougies in skilful hands.

For tight strictures several filiforms, 15 inches long, are introduced into the esophagus, some bent, some twisted corkscrew-like, some straight. By manipulation one of the filiforms can be made to slip through the strictured segment. The other filiforms are withdrawn. The spiral-wound, flexible, metallic bougie is then introduced, by screwing its small threaded end to the threaded butt end of the filiform and pushing it gently into the esophagus with or without the lead core, according to the resistance offered by the stricture. The filiforms, being soft and flexible, curl up in the stomach without trauma to the gastric mucosa.

A shorter and stiffer filiform point may be used successfully to guide the dilator through a tight stricture at the level of the diaphragm. A short, hard-rubber tip may be screwed to the hollow end of the metallic bougie when the latter is to be used as an ordinary sound.

The writer also has devised a dirigible sound, the distal end and tip of which may be moved at will while the instrument lies in the esophagus, by the manipulation of an adjustment screw at the proximal extremity.

Bulbous sounds for the esophagus, like the urethral "bougie à boule," are useful in locating the strictures, but are of little value as dilators. It is almost impossible to cause a bulb to lie in the grasp of a small stricture, hence it is not easy to secure with them the absorption produced by continued gentle pressure.

The swallowing of weak cocaine or adrenalin solution, by virtue of the vascular depletion produced by these agents, facilitates the introduction of any esophageal sound. Aside from producing local anesthesia, the cocaine solution in most cases will relieve nausea and prevent spasmodic and violent reversed peristaltic efforts, which may render the passage of an instrument well-nigh impossible in an otherwise passable stricture.

The writer has found that tilting the head forward, thus relaxing the tissues of the neck, greatly facilitates the passage of esophageal instruments.

Not all varieties of esophageal stricture may be treated successfully by dilatation, yet it is doubtful whether the sound is not useful at some time in every case of cicatricial stricture.

OSTEOPLASTIC AMPUTATION OF THE LEG.

On account of some unfavorable results recently reported in cases in which amputation of the leg was practiced, by various osteoplastic methods, DUVAL (*Revue de Chirurgie,* January, 1904) details four successful cases of over three years' standing. Operation consisted of forming an osteoplastic flap from the tibia, and suturing it with silver wire to the end of the fibula. The long, posterior, musculocutaneous flap employed in these cases served as a thick cushion over the end of the stump. At the end of three years all four cases had soft, painless stumps, capable of withstanding great pressure. Radiographs show that the osteoplastic flap was in all cases attached firmly to the end of the tibia, and in three cases to the fibula as well.

ACCIDENTS DUE TO LUMBAR PUNCTURE.

Lumbar puncture usually is not accompanied by unfavorable complications. It may be followed by pain in the legs, headache, vomiting, vertigo, and syncope, but these are not serious as a rule. When followed by fever and tachycardia in association with meningeal symptoms, the situation is grave and death may occur. Henneberg reports a death from hemorrhage following lumbar puncture. MAYSTRE (quoted in *American Medicine,* Jan. 16, 1904) indicates the precautions that should be taken.

The patient should be prepared as for major operation. He should be given a purge and diuretic, the diet should be light, and he should avoid all worry; after the operation the patient should be placed in bed with his head low, and allowed to remain in this position for six hours or more according to the needs. Asepsis should be practiced with scrupulous care. When the needle is withdrawn the cutaneous orifice should be touched with tincture of iodine or a thermocautery; a little collodion may be used to close the wound,

and this in turn covered with a layer of cotton and a bandage, which is left in place for forty-eight hours. The puncture is made in the lumbosacral region. Not more than 7 to 10 cubic centimeters (2 to 2½ drachms) of liquid should be drawn off, as large quantities may lead to very serious consequences. It should be withdrawn slowly, never aspirating to hasten the flow. The face and the pulse of the patient should be watched, and at the least faintness or complaint the needle should be withdrawn. These precautions will reduce complications to a minimum, but the operation should be performed only in urgent cases. This treatment may be used in cerebrospinal meningitis when hot baths seem to produce no improvement. Certain cases of cephalalgia due to Bright's disease are relieved by lumbar puncture. As a means of diagnosis it should be used only in indecisive cases in which a definite knowledge is necessary, and in such cases a consultant should be called.

GASTROENTEROSTOMY BY MEANS OF THE ELASTIC LIGATURE.

NANCREDE (*Physician and Surgeon,* December, 1903) advocates the McGraw elastic ligature method of performing gastroenterostomy.

Having identified and selected the portion of the intestine, an assistant should hold it together with the stomach gently upon the stretch while a continuous seromuscular suture is passed, to unite the two for a distance of two or more inches, according to the size of the opening desired.

If the assistant will so hold the stomach and intestine that they are somewhat distended with flatus, this maneuver will prevent the needle-point catching in the valvulæ conniventes, or the opposite wall of either viscus. A good-sized darning-needle threaded with a rubber ligature one-eighth of an inch thick must now be thrust through the stomach wall, near one extremity of the suture line, and made to emerge near the termination of the same. An assistant by maintaining traction on the elastic ligature renders it much smaller, so that it can be drawn readily through the stomach for about half its length. Next the needle should be made to penetrate the intestine opposite its point of emergence through the stomach and be brought out again, with the ligature, at a point corresponding to that where the stomach was first entered. This order of passing the ligature is better than the reverse, being not so liable to produce infection should the ligature touch any viscus, and is also advantageous by not putting so much strain on the suture line. Tension on the ligature favors its passage, and a careful wiping of the cord by a wet sponge, after its emergence, first from the stomach and later from the bowel, is advisable. Performed in this way, infection cannot occur, because the opening is tensely filled by the ligature. A stout silk ligature is laid between the points of emergence of the rubber ligature from the stomach and intestine. The rubber ligature is firmly drawn upon, an assistant crowding the included visceral walls well along the stretched ligature, after which the first half of an ordinary square knot should be tied and tightened until the ligature will stretch no further. A steady, prolonged pull must be maintained, otherwise the cord will either break or will not be tight enough to cut as quickly as desirable. An assistant should tie the silk ligature tightly with a square knot around the rubber half tie, the ends of which at once assume their former diameter when the tension is relaxed, thus preventing slipping. The second half of the square knot can be made with the stretched rubber ligature and tied with the silk ligature, if deemed advisable. Cutting the rubber ligature close to the silk tie, and burying this with all the tissues included in the rubber loop by a continuous silk seromuscular suture, completes the anastomosis, after which the parts are cleansed and dropped back into the abdomen, and the parietal wound is closed.

McLean's needle is advantageous for passing the ligature, but a good-sized darning-needle is all that is actually requisite. The method is simple and requires but little technical skill. The time required to complete the operation should be no more than when the Murphy button is employed, the size of the opening is unlimited, and the minute foreign body formed by the loop of the ligature can be confidently ignored. No special instruments are demanded, no clamping of stomach and intestine to prevent the escape of their contents, no elaborate pack-

ing of the abdominal cavity to prevent infection.

The vicious circle is not prone to follow this operation. The operation is contraindicated when at least three to five days cannot be spared before full stomach feeding is instituted.

The writer has operated upon fifteen cases during the past eighteen months by this method. No fatality traceable in any way to the method of operating occurred, although one patient died in thirty-six hours from exhaustion, and another in eight days from a carcinomatous obstruction of the colon. A post-mortem examination in both instances demonstrated that the method of operating had nothing to do with the fatal result. No failure to secure an adequate opening has been observed in any case.

CHRONIC NEPHRITIS—SURGICAL TREATMENT.

REYNOLDS *(Boston Medical and Surgical Journal,* Feb. 4, 1904) reports four cases of chronic nephritis, all of which were operated upon in the comparatively early stages of the disease. All four recovered; two may be called cured, and one relieved, while one is probably unrelieved.

Theoretical consideration of this affection has led the author to adopt a somewhat different operation from that advanced by Edebohls. First, the capsule is slashed in parallel lines, instead of decapsulating the kidney; secondly, operation is performed in each case only on the more seriously diseased kidney, in the belief that the patient thus incurs less danger and far less discomfort during convalescence, and there is a probability of obtaining as much benefit from this procedure as from the double operation; in the third place, should the case be relieved but not cured by this operation, it is a simple matter to operate later on the second kidney.

In summing up his experience the author rather tentatively presents these conclusions:

1. It must be admitted that our present knowledge of the pathology and physiology of renal disease is still defective, but there is reason to believe that nephritis has, as a rule, an infective origin, and it is probable that a defective renal drainage, due to swelling of the organ within a rigid capsule, plays a part in maintaining the disease.

2. Cases in which general uremic symptoms are more prominent than the physical signs obtained on the examination of the urine are unpromising cases for operation.

3. The cases in which urinary signs and constitutional depression outweigh the distinctly uremic general symptoms may be regarded as favorable for operation.

4. In the cases in which one kidney is mainly or predominantly affected, a unilateral operation on that kidney insures improvement in health if not an ultimate recovery.

5. In women in whom ureteral catheterization involves little trauma and less risk, all cases of chronic nephritis, as soon as recognized, should be subjected to ureteral catheterization; and in any unilateral case in which the normal state of health is being decidedly and progressively lowered, operation may be recommended as affording a fairly definite prospect of health to an otherwise incurable condition.

THE SURGERY OF BRAIN TUMORS.

After discussing the surgery of brain tumors, FRAZIER *(American Journal of Medical Sciences,* February, 1904) presents the following résumé:

1. All measures recognized as prophylactic of shock should be observed stringently. In these are offered the most effectual means of reducing mortality. The most important of them are (*a*) the avoidance of prolonged operation; (*b*) the prevention of excessive hemorrhage; (*c*) the avoidance of unnecessarily rough manipulation of brain substance.

2. A given area of brain can be exposed with the minimum degree of traumatism and greatest economy of time by the so-called dental engine, armed with a trephine and drill.

3. Temporary occlusion of the carotids in operations upon the brain is ineffectual and not unattended by danger. It should be reserved for extreme cases and practiced on one side only.

4. Observations should be made upon the blood-pressure immediately before and at frequent intervals during the operation, the object of the same being two-

fold: (*a*) to ascertain the patient's condition by a reliable index; (*b*) to determine by the only exact method whether the operation should or should not be carried out in two stages.

5. Two-stage operation is indicated when there has been a decided fall in blood-pressure after the relief of the brain tension such as follows the reflection of the Wagner flap.

6. Lumbar puncture, as a means of relieving pressure, is a temporary, not to say dangerous, procedure.

7. Bulging of the brain is one of the most embarrassing features of cerebral operations. A distinction may be made between that which occurs immediately after reflecting the dura, "initial" bulging, and that which follows as the result of subsequent exploratory operations, "consecutive" bulging.

8. Initial bulging is due to the increased tension exerted by the tumor substances. It is not always present, is often not excessive, and is not likely to be followed by consecutive bulging.

9. Consecutive bulging is due to cerebral edema set up in normal brain tissue by the trauma of exploratory manipulations. Consecutive bulging far exceeds in magnitude initial bulging, and suggests the presence of a tumor of considerable size at the seat of operation.

10. In order to avoid consecutive bulging, exploration should be carried out in the most expeditious manner.

11. When the edges of the dural wound cannot be approximated without undue tension, or without great laceration of the brain substances, the gap should be closed by a graft taken from the pericranium, providing a tumor has not been found, and there is reason to question the accuracy of the diagnosis.

12. When there is every assurance of a tumor being present, but it proves to be inoperable, or imperfectly localized, no attempt should be made to close the dura, as in so doing the best palliative effects of the operation will be counteracted.

13. Palliative operations should be regarded not merely as operations of propriety, but should be considered imperative when the tumor cannot be found or cannot be removed.

14. A statistical consideration of the results of the last five years is encouraging. The mortality, both immediate and subsequent, has been reduced materially. Recurrence after operations for malignant growth of the brain is not greater than for malignant growths of other structures.

PARTIAL ENTEROCELE.

HOTCHKISS (*Annals of Surgery*, February, 1904) states that partial enterocele, or hernia in which only a portion of the gut wall is pushed into the hernial sac, is as interesting as it is rare.

To the surgeon it presents itself as a form of strangulated hernia, most dangerous because of the lack of typical symptoms. The hernial sac is generally small, its contents a portion of intestinal wall, and very exceptionally omentum. With dense and unyielding walls, and a narrow aperture in which the partial enterocele is caught, the strangulated portion of the gut wall soon loses its vitality, and gangrene, perforation, or general peritonitis may ensue, before the case assumes clinically the appearance of real gravity.

In some of the reported cases a pre-existing hernia has been present, but in the majority it is very small or entirely unnoticed, until after some unusual strain perhaps a small swelling develops at the site of one of the hernial openings, and becomes painful. From the fact that only a portion of the intestinal wall is engaged in the neck of the sac, the typical signs of acute intestinal obstruction, so early developed in ordinary cases of strangulated hernia, may not appear until late, or until the inflammation with its accompanying swelling has spread to and involved the unstrangulated portion and led to its complete occlusion.

The portion of intestinal wall involved in partial enterocele is generally the convexity opposite the mesenteric attachment. The lateral wall, however, may be the seat of strangulation, simulating a true diverticulum, or even the mesenteric border of the gut may be implicated.

When such a hernia does occur, it must be evident, from its very nature, that the interference with the circulation in the involved portion of the gut must soon be followed by swelling and infiltration of its tissues, by the outwandering of intestinal bacteria through the damaged gut wall, and a general infection of the sac and its contents. Adhesions between the gut and

the neck of the sac protect the general peritoneum from infection for a little time, but finally this feeble barrier is overcome and a general peritonitis rapidly develops.

Since the conditions in strangulated partial enterocele are such that considerable damage to the intestinal wall is bound to have occurred before the diagnosis is made, or an operation undertaken, resection of the gut will have to be resorted to in most of the cases.

The writer reports six cases which are characterized by a lack of uniformity in the symptoms, the absence of any single pathognomonic sign which would have made an early diagnosis reasonably certain, and finally by the great disproportion between the early symptoms and the real gravity of the cases. All six patients were operated upon. Three died and three recovered.

MUSCULAR HERNIA—DIAGNOSIS AND TREATMENT.

BILHAUT (*Annales de Chirurgie et d'Orthopédie,* December, 1903) reports a case of hernia of the triceps muscle in a young man twenty-eight years of age, who had received a severe blow on the posterior surface of his right arm ten years previously. On the lower posterior aspect of the arm there was a soft tumor, not adherent to the skin and exhibiting neither fluctuation, redness, pain, nor tenderness. The tumor was not adherent to the humerus, and was freely movable laterally, but not vertically. When the forearm was flexed the tumor was situated low down, but when the arm was forcibly extended the swelling reached its highest position at the middle third of the arm, and was, moreover, harder, smaller, and much less movable. This change in position Bilhaut considered quite pathognomonic.

It is difficult in these cases to recognize the condition of the enveloping aponeurosis without surgical intervention. The fascia may be merely stretched, in a manner comparable to the sac of an abdominal hernia, or it may be freely torn, the latter being more probable in injury from direct violence or muscular contraction. In the author's case it was feared that the fascia was stretched and thinned out rather than simply divided, and still firm, hence an operation was not performed, as the aponeurosis, if sutured, would not bear the strain necessary to maintain and reduce the reduction of a hernia the size of half an orange, nor would it be possible to increase its strength by overlapping. The long interval since the injury and the good functional power of the triceps also favored non-intervention in this case, as they would in analogous cases.

When the muscular hernia is recent and small in size, the injuries should be repaired by suture of the fascia.

BALSAM OF PERU TREATMENT OF COMPOUND FRACTURES.

During the last four years VAN STOCKUM (quoted in the *Journal of the American Medical Association,* Feb. 6, 1904) has treated compound fractures in the following manner: All foreign substances are removed with sterile forceps, but the wound is not washed nor disinfected, and no ligature is applied unless a large artery is bleeding. Balsam of Peru is then poured copiously into the wound, its penetration being promoted by moving the limb a little. The fracture is then reduced as if it were a simple fracture, and the wound is dressed with gauze impregnated with the balsam under an impermeable covering. The limb is immobilized in a plaster cast for three weeks, and the dressing is left undisturbed. The temperature always rises at first, but not seriously, and subsides to normal by the fifth or sixth day. At the end of three weeks the mortified tissues are found mummified; the edges of the wound show no trace of redness or swelling; the bones are found consolidating and the wound granulating normally. He seldom had occasion to apply the balsam more than once or twice in 90 cases thus treated, including 58 of the leg, 4 of the thigh, 15 of the arm, 2 of the pelvis, 1 of the patella, 2 of the calcaneum, and 8 of the lower jaw. The treatment was a complete success in all but 4 cases. In these there was some suppuration, but recovery without a second operation occurred in all but one, in which gas gangrene necessitated secondary amputation. In 8 cases healing was delayed by the presence of a foreign body, causing a fistula and requiring removal. The results of this treatment cannot be due to

any bactericidal property of the balsam, but rather to its effect in stimulating the living tissues. Landerer obtained similar results in tuberculosis with cinnamic acid, one of the elements of balsam of Peru.

INTRA-UTERINE FLUSHING FOR INFECTION.

With the noteworthy and perhaps the single exception of the gonococcus infection, which may be engrafted upon the healthy and unbroken mucous membrane, infectious diseases of the female genital and pelvic organs are to all intents and purposes nothing more nor less than wound infections. They are of the same origin, and their course and consequences are similar to like pathologic processes elsewhere in the body, and they are subject to the same laws for prevention and treatment.

In maintaining that the curette and mercuric chloride douche should not be used in *acute* infections of the female genital organs, WETHERILL *(American Medicine,* Jan. 30, 1904) states that they are unnecessary and universally injurious. This refers to acute infections and does not apply to chronic endometritis, the result of old infection; nor to those cases of sapremia, after delivery at term, or after abortion, in which the symptoms are clearly due to the retention of putrid products of conception, which must and should be instantly removed, with the dull curette if necessary. The use of the curette is irrational in these acute infections, which are mostly of the streptococcus, staphylococcus, or colon bacillus varieties, as there is very often no putrid foreign body to be removed from the uterine cavity, and even if there were it would be unwise to break down the natural barriers to the extension of the process with the curette, when the indications of the case can be met better by other means.

The intra-uterine and vaginal douche of mercuric chloride is without other good effect than the mechanical one of washing away the accumulated discharges, a function which is better met by the douche of plain water or of salt solution.

To provide perfect uterine drainage and a means for maintaining it without disturbing the patient or the parts involved, the author suggests the use of a two-way tube made as follows: Two large openings an inch apart are cut in a long piece of drainage tubing; one end of the tube is passed through the first opening and out at the second and is pulled taut, so that the portion between the openings is inverted. The legs of the tube are bent down, sutured together in the direction which keeps the openings patulous.

After the removal of putrescible débris from the uterus by the finger and blunt placenta forceps, followed if necessary by flushing with salt solution, potassium permanganate solution, or diluted alcohol, all non-toxic and used only for their mechanical effect in washing out loose fragments, the double drainage tube is gently inserted to the uterine fundus and flushed with salt solution or diluted alcohol to assure its freedom from obstruction by clots or débris, the vagina is lightly packed with iodoform gauze, and the patient is returned to bed. The manipulation is so gently done that no anesthetic is needed. The tubes are flushed every two to four hours, with alcohol of a strength varying from 25 to 95 per cent, according to the severity of the symptoms and the degree of smarting it produces at the vaginal outlet. This is a modification of the alcohol method of Carossa, but in the author's judgment and experience a very important and valuable change has been made in leaving out all packing of the uterine cavity, and in the use of double tubes for flushing and drainage without disturbing the patient's position in bed.

Best of all, however, is the fact that it can be employed by every capable practitioner everywhere, and that its use involves no surgical operation, no anesthetic, no frequent and painful handling of the patient, and that it will yield results heretofore unattainable by any other method.

TUBERCULOUS STRICTURE OF THE INTESTINE.

CULLEN *(American Journal of the Medical Sciences,* March, 1904) remarks that tuberculous infiltration of the intestines is relatively frequent, but stricture of the lumen of the bowel as the result of this condition is somewhat rare. In one thousand autopsies on tuberculous patients Eisenhardt found intestinal lesions in 566 cases; in only nine, however, was there a more or less definite stricture of the bowel.

Tuberculous strictures are usually sin-

gle, and situated at the ilocæcal valve. The cæcum is converted into a sausage-shaped body, which is adherent as a rule posteriorly, and occasionally laterally. The omentum is not so prone to engraft itself upon the tumor as in cases in which appendicitis exists. The outer surface, while relatively smooth, may be studded by a few tubercles. At one point the gut shows a constriction, and around this the adipose tissue is usually very dense. At the point of stricture the lumen of the gut is so narrow that the tip of the finger, or even a small-sized sound, can be introduced only with difficulty.

In rare instances the process involves the abdominal wall, and forms a fistulous opening on the surface. The mesenteric glands become involved early in the tuberculous process, and where the cæcal invasion is apparently in its incipiency there may be caseation of these glands. Tuberculous stenoses of the gut, when multiple, are almost invariably situated in the ileum. From one to twelve strictures have been noted in the same patient. The bowel between the strictures is distended, and in some cases has been known to reach 17 centimeters in circumference. The appendix is usually adherent, but unless the tuberculosis of the cæcum is far advanced, shows no implication in the specific process. The peritoneal surface is usually free from tuberculous nodules until the disease is far advanced, or unless there is an associated tuberculous peritonitis.

Tuberculosis of the cæcum usually is observed in patients between twenty and thirty years of age, but it may be found in the very young, or in individuals fairly advanced in years.

Not infrequently a tuberculous process is present in some other part of the body. One of the first symptoms is constipation; after a time dull or sharp pain is felt in the appendiceal region; as the constriction develops there may be an intermittent diarrhea, and fulness may be noted over the cæcum. Where there is much infiltration of the intestinal wall the gut becomes very firm, and forms like a sausage-shaped tumor. Symptoms of obstruction gradually supervene, as evidenced by abdominal distention, colicky pain, marked peristalsis, vomiting, and rapid loss in weight.

Given a tumor of slow growth in the right iliac fossa, a clinical history pointing to pulmonary tuberculosis, and a comparative absence of temperature, it is highly probable that tuberculosis is present. If the patient be fairly well advanced in years, malignancy must be considered.

The diagnosis between cæcal tuberculosis and appendicitis is usually dependent on the tuberculous history and the slow growth of the tumor, together with the absence of a temperature suggestive of pus accumulation. If tuberculosis of the cæcum is diagnosed, early operation is indicated. Resection of the entire diseased area is necessary for a complete cure. Lateral anastomosis between the ileum and the ascending colon is the ideal operation. If the span of the gut involved by the tubercular process be not over three or four feet, it is wiser to remove this portion in its entirety. In one of the cases reported between six and seven feet were removed and the patient recovered. The mesenteric glands should be examined carefully, and if involved they should be excised. Hoffmeister has reported eighty-three operative cases with sixty-three per cent recovery.

GONORRHEAL CONJUNCTIVITIS.

OLIVER (*Therapeutic Review*, January, 1904) states that in early cases of gonorrheal conjunctivitis fatal or indifferent ocular results will be avoided by the following treatment:

1. Free, gentle, and repeated cleansing of the surface of the infected tissues with sterile water applied through a bulb syringe by an experienced nurse.

2. Early obtainment and maintenance of full pupilary dilatation, with the removal of all undue iridic and ciliary muscle action by means of atropine, or, when necessary, scopolamine, supplemented by atropine.

3. Lowering the invading microörganisms' vitality by the constant use of iced compresses, which however must not be applied to eyes which such treatment would injure.

4. Maintenance of the organs' vitality, especially where there are trophic disturbances, as in corneal involvement, by the topical application of heat.

5. Destruction of the intruding floral germ-cell material with the least possible disturbance to faunal cells of involved part by gently patting the exposed areas

of the palpebral mucous structures with weak solution of nitrate of silver.

6. Isolation of patient and protection of unaffected eye.

7. Support and improvement of the patient's general condition by copious ingestion of easily digested and assimilable foodstuffs, by the graded but copious internal use of sterile water, strict emunctorial hygiene, and organic corrective when needed.

8. Skilled nursing, as long as examination shows presence of gonococci germ.

These rules must be closely adhered to until some days after examination has shown that the gonococcal infection has been completely eradicated.

PRIMARY CARCINOMA OF THE BULBOUS URETHRA.

HALL (*Annals of Surgery*, March, 1904) has succeeded in compiling a list of twenty-one cases in which the diagnosis of primary cancer of the bulbous urethra has been confirmed by microscopical examination. There are also on record five cases in which no such examination was made, and three in which the growth arose primarily in Cowper's glands.

Primary cancer of the urethra occurs in men over fifty who most frequently have suffered from some disease of the canal, usually gonorrheal stricture. The most prominent symptom is the gradual formation of a hard, nodulated mass around the urethra. Micturition becomes increasingly difficult and is very painful, far more so than in simple stricture. Hemorrhage, especially before and after micturition, seems to be a common symptom. As the growth extends the crura and corpora cavernosa become involved, and the disease advances past the scrotum into the penile portion of the urethra. The glands in the groin enlarge, and the patient becomes cachectic in appearance. The passage of an instrument may be difficult and is apt to be followed by bleeding. In four of the cases there was a marked absence of pain and hemorrhage, and in two of these instruments passed with great ease into the bladder.

A differential diagnosis between malignant disease and simple induration around the stricture frequently is impossible prior to operation, except when the size of the perineal swelling is out of proportion to that usually associated with simple stricture. In many instances the diagnosis can be made only during the operation.

In half the reported cases treatment was palliative, and in the other half radical. Perineal section or simple incision was done in ten cases. In one of these the patient was lost sight of, one lived eighteen months, and the remaining eight all died within nine months. In the ten cases treated by resection, or some form of extirpation, the result was unrecorded in one; of the remaining nine, death occurred in nine months in four, and one had a recurrence within six months of the operation. Of the remaining four the subsequent history is incomplete, but there was no recurrence at twenty-one months, eleven months, ten months, and four months respectively.

Extirpation is worth a trial, provided the disease is recognized in an early stage. The growth invariably proceeds toward the penis, but shows no tendency to invade the prostate and tissues behind the triangular ligament. The lymphatic infection occurs in the inguinal glands, and therefore is amenable to surgical treatment.

TREATMENT OF OBSTINATE CYSTITIS.

FRENDENBURG (*Tribune Médicale*, Nov. 28, 1903) recommends intravesical injections of iodoform in the treatment of cases of cystitis in which there is fetid decomposition of the urine, or in which a distinct ammoniacal reaction is present. Three cubic centimeters of a 10-per-cent suspension of iodoform in glycerin, diluted with 30 to 40 cubic centimeters of some non-irritating fluid, is injected into the bladder every second day. The action of the iodoform is so uniformly beneficial that failure to respond to the treatment may be regarded as very positive evidence of the existence of some complication, such as lithiasis, diverticula of the bladder, pyonephrosis, etc.

For tubercular cystitis the treatment suggested by Guillou of instilling a solution of picric acid into the empty bladder is the most efficient.

The topical treatment of obstinate cystitis gives immediate results without exciting pain. Symptoms improve in the following order: frequency of urination diminishes, then the pain decreases, and finally the pus disappears.

Reviews.

THE MEDICAL NEWS FORMULARY FOR 1904. By E. Q. Thornton, M.D. Sixth Edition, Revised. Philadelphia and New York: Lea Brothers & Co., 1904.

This is a small manual, bound as is an ordinary visiting list, with a wallet for prescription blanks. It is devoted to the presentation of formulæ which have been found useful by the author or by members of the medical profession in whom all of us have confidence. As Dr. Thornton is not only an active practitioner but a graduate in pharmacy as well, he has been able to prepare a manual in which the prescriptions are not only pharmaceutically elegant, to use an expression popular with pharmacists, but also correct from the standpoint of therapeutics. The fact that a sixth edition has been called for in a period of about four years proves that it is popular, and that it offers suggestions to the active practitioner which he is often glad to profit by.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by A. O. J. Kelly, A.M., M.D., with Collaborators. Volume I, Fourteenth Series, 1904.
Philadelphia: The J. B. Lippincott Company.

The present edition of the International Clinics is a very good one. There are five articles devoted to therapeutics. One of these is on the Chloride Reduction Treatment of Parenchymatous Nephritis, by two French physicians, Widal and Javal. This is followed by one upon Adonidin by Dr. Wilcox, of New York; another upon the Therapeutic Applications of Colloidal Silver by Netter and Salomon. Dr. Edes, of Boston, contributes a fourth upon "What is a Cure for Neurasthenia?" and Dr. McCaskey of Ft. Wayne, Indiana, contributes one upon the Treatment of Gastric Neurasthenia. In the articles devoted to medicine there is an interesting one upon the Increased Mortality of Pneumonia by Dr. N. S. Davis, of Chicago; another upon Cryoscopy by Dr. Henry W. Cattell; one upon Nephritis of Gastrointestinal Origin by Dr. Favill; and a fourth upon the Early Diagnosis of Pulmonary Tuberculosis by Dr. Walsh. In the department of Surgery we find an article upon the Treatment of Angioma by Dr. Carl Beck, of New York; one upon Intestinal Anastomosis by Dr. Clark, of Philadelphia; and another upon Gastrointestinal and Hepatic Surgery, as seen in the German clinics, by Charles P. Noble, M.D. There are also articles upon Gynecology and Neurology. The last 116 pages of the volume are devoted to a record of the progress of medicine during 1903. Dr. D. L. Edsall sums up Medicine, Dr. Bloodgood sums up Surgery, and Dr. Stevens sums up Treatment.

THE BLUES: CAUSES AND CURE. By Albert Abrams, A.M., M.D.
New York: E. B. Treat & Co., 1904.

The Blues, according to Dr. Abrams, may be termed in scientific medicine "splanchnic neurasthenia." In other words, he thinks that the mental depression to which this popular term is applied depends upon splanchnic exhaustion. After describing the condition which is called "the blues" and "neurasthenia," he speaks of the general symptoms of both of these conditions, and in his concluding or eighth chapter gives the treatment which he advocates. An appendix closes the volume, which covers about sixty pages. A number of subjects not closely connected with the general title of the book are also considered, such as Pulmonary Anemia, Blood-pressure, and the Liver and Heart Reflexes.

A MANUAL OF CLINICAL MICROSCOPY AND CHEMISTRY. By Hermann Lenhartz. Author's Translation from the Fourth and Last German Edition, with Notes and Additions by Henry T. Brooks, M.D. Price $3.00.
Philadelphia: The F. A. Davis Company, 1904.

In the translator's preface he asserts that this volume is especially designed to meet the requirements of the busy general practitoner as well as the specialist, since only practical material has been included. In its pages much that is theoretical has been entirely excluded. In many instances, Dr. Brooks, the translator, in going over the German text has added notes which are of very great value and materially increase the usefulness of the volume. On looking over its pages we find that it is an adequate presentation of the subject, but we also find that it fails to present it in a new form, or to give us any additional means of clinical examination from those which are already well known. In other words, the book does

not profess to be original, but simply a good working guide for the laboratory and for the active practitioner who is careful enough to examine the blood, the sputum, the urine, or feces of the patients who may come under his care.

DISEASES OF THE INTESTINES. A Text-book for Practitioners and Students of Medicine. By Max Einhorn, M.D. Second edition.
New York: William Wood & Co., 1904.

The first edition of this book having been exhausted in about four years, the author has prepared a second edition, but tells us in his preface that very little has been added to the original text, as "progress in this branch of medicine within the last four years has been but scanty." The volume is a small octavo of less than 400 pages and does not pretend to give an exhaustive summary of the literature of the subject, but on the other hand largely represents the views which are held by Dr. Einhorn in regard to the pathology and treatment of intestinal disorders. In certain sections of the book copious references are given to original papers, particularly those which have been written by German authors, and in the portions devoted to treatment, prescriptions are frequently introduced to provide models of what the physician should prescribe for the control of the symptoms which are present in various disorders of the alimentary canal. The book can be cordially commended to the general practitioner who wishes a monograph on this particular subject.

A MANUAL OF CLINICAL DIAGNOSIS FOR STUDENTS AND PRACTITIONERS. By Charles E. Simon, M.D. Fifth Edition. Copiously Illustrated.
Philadelphia and New York: Lea Brothers & Co., 1904.

The first edition of Dr. Simon's book appeared in 1896. That it should have reached a fifth edition in eight years is certainly creditable to its author and to the profession as well, since it shows that physicians are anxious to keep abreast of the methods by which we study disease with the aid of microscopy and chemistry. At the present time the volume is one of nearly 700 pages and fulfils in a most admirable manner the mission which its author has attempted to carry out. It can be used in the laboratory of the specialist who does little practice, but who is fond of studying the alterations in normal secretions produced by disease, or it can be employed with equal value by the bedside practitioner who wishes to carry out careful investigations, or who desires to instruct his assistant so he will be able to refer to him for information specimens which are brought to his office by his clients. We would especially commend the colored plates, which are much better than are usually found in works of this character.

A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS FOR STUDENTS AND PHYSICIANS. By John H. Musser, M.D. Fifth Edition, Revised and Enlarged.
Philadelphia and New York: Lea Brothers & Co., 1904.

We are glad to note the appearance of the fifth edition of this most excellent modern book on Diagnosis. When it first appeared it gave promise of the success which has since come to it, and at the present time it is without doubt the most exhaustive and encyclopedic work upon this subject, by any single author, either in this country or abroad. The number of pages in the present edition is over 1200, and the illustrations cover everything that is needful to describe measures employed for diagnostic purposes. The original drawings are excellent, and the plates illustrating the microscopical appearance of the blood in various conditions of disease are remarkably good. This is saying a good deal when it is remembered how difficult it is to obtain good original drawings of the blood, and how still more difficult it is to reproduce them.

Musser's Diagnosis is a work which is to be turned to by physicians whenever they are seeking for information not only of a general but of an exact character, and in its pages the seeker after knowledge will find descriptions of many facts which cannot be included in smaller works on diagnosis. If any criticism can be made of the volume at the present time, aside from its size, it is that there is an embarrassment of riches in the way of illustrations, some of which we think do not add sufficiently to the value of the volume to justify their appearance. However, physicians who are not in close touch with hospital practice are doubtless best qualified to determine their value.

We do not consider that it is the function of the reviewer to give advice as to the purchase of books, but merely to

express an opinion concerning their usefulness, but in this instance we can unhesitatingly recommend Dr. Musser's Diagnosis to every physician who wishes to be in possession of the most exhaustive and accurate volume upon this subject.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

The treatment of urinary tuberculosis has been so unsatisfactory hitherto that one is glad to hear of any new method which may offer better results. Mr. Hurry Fenwick recently communicated to the Medical Society of London a paper on this subject, in which he advocated the use of Koch's new tuberculin for cases in which the tubercle was affecting the bladder only. The difficulty however for most medical men would be to decide when the bladder is affected alone; the presence of tubercle bacilli in the urine must be definitely ascertained by a competent bacteriologist; the condition of the kidneys, whether tubercular or not, could be determined in many cases by the use of the cystoscope; any tubercular affection of the kidney is usually unilateral, and thickening of one ureter, a usual association of the renal disease, could be detected by the cystoscope. Mr. Swinford Edwards corroborated his statement as to the value of tuberculin in tuberculosis of the bladder; he had used it in several cases, and always with advantage, symptoms being greatly diminished after the injections. When the kidney shows a condition of chronic tubercular disease with thickening of the ureter, Mr. Fenwick would remove it; among twenty-five nephrectomies he had had one death. But it is very important that the affected kidney shall be removed as early as possible; fatal results are much more likely to occur after operation where this has been delayed for a long time. He thinks urotropin is of little use for these conditions; santal oil is perhaps of some value. Fortunately pulmonary tuberculosis is not commonly associated with urinary tuberculosis, but where the lungs are affected neither tuberculin nor operation is advisable for the urinary disease.

So much was heard of the Nauheim treatment for heart disease a few years ago that one might be surprised at the obscurity into which it has retired again if one were not by this time accustomed to the innumerable new and infallible methods of treatment which "blossom but to die." However we were recently reminded of the existence of Nauheim by a paper read by Dr. Franze before the Hunterian Society on the value of Nauheim baths in diseases of the circulation. The springs contain sodium, lithium, and calcium, and carbonic acid gas, and are of three different temperatures, 85°, 90°, and 95° F. respectively; they stimulate metabolism, and so improve digestion and nutrition; they cause contraction of the vessels of the skin followed by dilatation, thus evidently improving the circulation. Dr. Franze considers that any patient who is well enough to bear the journey to Nauheim is well enough to bear the bath treatment, and he specifies as conditions for which this is suitable, valvular disease due to rheumatism, weakness of the heart muscle (for instance, after influenza or typhoid), fatty heart, and angina pectoris with arteriosclerosis. It is fairly evident from the remarks made by subsequent speakers that the English mind is shockingly skeptical; we are constantly pelted with pamphlets demonstrating beyond dispute—on the unimpeachable authority of the local physician—that the baths of "this delightful resort" contain various salts to exactly six places of decimals, and hence are suitable for most of "the ills which flesh is heir to;" in many cases the efficacy of this particular bathing-place is confirmed by illustrations of the charming scenery in the neighborhood. Perhaps there is a tendency in this country to underrate the value of "balneo-therapeutics," which undoubtedly have a very real importance in practical medicine.

An interesting observation on the use of drugs in heart disease was one recently reported by Dr. C. W. Chapman, who showed at the Society for the Study of Disease in Children a girl aged twelve years who had suffered with recurring dilatation of the heart secondary to endocarditis of the mitral valve. The usual cardiac remedies were tried, and for a time compensation was reëstablished, but subsequently the ordinary drugs failed to relieve her, and a trial was therefore made

of adrenalin solution in five-minim doses every four hours. The result was most satisfactory; the heart condition steadily improved.

On few subjects perhaps is there more divergence of opinion than on the feeding of infants; but during the past few years —stimulated no doubt by the progress made in America in this matter—the profession not only in London but throughout this country has begun to realize the vast social importance of the proper feeding of infants. There has been great outcry recently about physical deterioration, and whilst there has been much talk of defects in the curriculum of school-life and in physical training in later years, it is satisfactory to find that some even of the laity have perceived that the fault lies not only, probably not chiefly, in the culture of the already developed youth, but in the faulty feeding which interferes with nutrition during the most active period of development, namely, infancy. There can be no doubt that the start in life may be of the utmost importance in determining subsequent growth and development; "wohl begonnen, halb gewonnen" holds good in the development of the individual as well as in the affairs of life. One of the daily papers, the *Pall Mall Gazette,* during the past month published an article emphasizing the importance of pure milk for infants who cannot be fed on the breast, and pointed out very wisely that to supply pasteurized or sterilized milk as some municipal bodies are now doing for the feeding of infants is but a poor apology for the supply of clean milk, and that so long as babies are fed on milk which is not clean, there will be weakly babies who, if they do not die, will grow up physical degenerates. Another aspect of this subject which has recently been under discussion, and which is probably even more serious, is the wide-spread failure of mothers to suckle their infants. There can be little doubt that in London, at any rate, a large majority of infants are either not fed on the breast at all, or are breast-fed only for three or four months or less. Amongst the well-to-do this failure of suckling arises frequently from unwillingness to suckle their infants, amongst the poorer classes it is often due to the fact that the mother has to go out to work. Even with the best of intentions there are few mothers who have the requisite knowledge to manage artificial feeding properly, and amongst the poor such feeding is almost invariably faulty in character. So long as this state of things exists it is not surprising that army officials should complain of the physical unfitness of recruits. Any one who is familiar with the wide prevalence of rickets amongst the poor and middle classes, and realizes how rickets interferes with growth and development, will understand how faulty infant feeding means physically unfit adults.

It were much to be desired that medical men would insist upon breast feeding wherever it is possible; one can only fear that the doctor too often consents to artificial feeding, or even recommends it, in a weak compliance with what he knows to be the wish expressed or unexpressed of the mother. Few would have the pluck of a correspondent to one of the medical journals recently, who stated that it was his habit to decline to attend a confinement if the woman expressed her fixed intention not to suckle the infant; a medical man, he says, should give the question of abandoning suckling as much consideration as he does the question of inducing premature labor. It would be well if all medical men had as high a sense of their responsibility.

An attempt is being made to introduce a bill into parliament for the state registration of trained nurses. At first sight there is much to be said in its favor: a minimum standard of education might be fixed, and common rules of discipline provided; and the general effect of such registration might be to raise the standard of nursing. But there are grave objections; technical qualifications are by no means the first essential to the making of a good nurse; the evils of examination systems are well enough known, and it would be bad indeed if an utterly unsuitable woman could be certified as a qualified nurse because she had passed certain examinations entitling her to state registration; moreover, it is undesirable that any uniform training should be made compulsory on all nurses as such a system would require. These and other arguments have been brought forward on both sides, and there is great discrepancy of opinion amongst the medical profession

on the subject. The Royal College of Physicians in Ireland has recently carried resolutions in favor of such registration, whilst many of the leading members of the profession, including Lord Lister in England, have signed a manifesto against it.

It is not the first time that such state registration has been proposed. Ten years ago a similar scheme was strongly opposed, as the present one is, by leading representatives of the nursing departments of the large hospitals.

Since my last letter a distinguished member of our profession in London, Sir Henry Thompson, Baronet, has passed away. I need say nothing of him, for full accounts of his brilliant career have appeared in many of the journals. He was not only one of the greatest surgeons of the last century, but was no mean artist, and as a literary man enjoyed the friendship of Thackeray and Dickens.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

At a recent meeting of the Society of Surgery the treatment of tetanus by chloral was discussed. Dr. Potherat presented a patient, a youth sixteen years old, who after a gunshot wound of the hand showed symptoms of lockjaw. A 10 cubic centimeter injection of antitetanic serum was made immediately, but gave no result. The treatment by chloral was then tried, after cleansing the wound. Twenty grammes (*sic*) of chloral were given daily, and the third day there was a notable amelioration. The treatment was kept up for thirty days, doses varying from 10 to 15 grammes being given, and now seven weeks after the accident the patient is cured.

Dr. Bazy relates a similar case, which he treated by serum and chloral (10 to 12 grammes) at the advice of Dr. Roux of the Pasteur Institute. This treatment was without effect on the infection, which was only stayed by large doses of chloral. Dr. Labbé said he agreed with Dr. Bazy, and Dr. Lucas-Championnière remarked that Nocard, who had been the inventor of the antitetanic serum, had never believed in its therapeutic properties. A certain number of cases have been reported, but almost always it was found necessary to use very large doses. Professor Terrier does not even believe that antitetanic serum is always efficacious as a preventive. A patient in his service showed symptoms of lockjaw two months after a preventive injection, and Dr. Reclus has seen lockjaw two weeks after an injection.

Dr. Linossier has recently expounded before the Society of Therapeutics the rules to be followed out in establishing the regimen of a patient suffering from a liver complaint. The two most important rules are to avoid giving much food and to prevent dyspepsia. From a practical point of view the following indications should be carried out: Very little or no meat, with the exception of lean ham, no pork or bacon. Fresh fish may be allowed. Milk should be given in abundance; some physicians have feared giving the cream, which in most cases should not be totally removed on account of its being so nourishing. Easily digested vegetables, such as peas, green beans, asparagus, artichokes, cooked salads, are recommended. On the other hand, cabbage, carrots, and turnips are to be avoided. Bread and breadstuffs should be eaten in moderation, as they are apt to be acid, the contrary of potatoes. Fruits without acidity, when quite ripe, are to be recommended, as they are slightly laxative, and the various salts they contain, such as the citrates, malates, tartrates, are transformed into carbonates. Plain water, or a light mineral spring water, is most excellent. Coffee should be partaken of sparingly, and chocolate avoided on account of the oxalic acid and fat it contains.

At a recent meeting of the Society of Surgery Dr. Poirier presented two cases of cancer of the tongue which he had operated respectively thirty-three and twenty-three months ago. There was as yet no symptom of recurrence. One of these patients is a syphilitic, a condition which according to Poirier is often found in cancer of the tongue. Poirier always removes the chain of glands on both sides of the neck, which according to him is the only sure method of removing all cancerous tissue. Drs. Sebeleau and Quénu agreed with Dr. Poirier in his treatment, but the former remarked that the results varied according to the position of the

tumor, a recovery being more often seen when the tumor is situated in the forward part of the tongue.

In a recent number of the *Journal de Médecine de Paris,* Dr. Condamin described a new treatment against morning sickness when the latter becomes very much pronounced. This treatment consists in washing the blood by means of injections of normal saline solution, and is carried out in the following manner: Absolute rest of the stomach by forbidding the use of all liquid or solid food during eight or ten days, and the daily injection per rectum of 3 or 4 liters of normal saline solution. If there is intolerance a few drops of laudanum may be added, or the solution may be injected hypodermically. After ten days the patient is brought back to the usual regimen little by little. This treatment has been used with unfailing success in seven or eight cases.

The question of having perfectly pure, fresh milk has been the cause in Paris of a number of articles in the daily papers, such as *Le Matin.* The campaign undertaken by the press has not however led to any serious result. The question has been taken up in *La Presse Médicale,* and P. Diffloth, agronomical engineer and special professor of agriculture, has begun publishing a series of articles in which he describes the causes of the poor quality of the milk employed in the French capital. According to Diffloth the amount of milk used in Paris has increased from 200,000 liters in 1840 to 800,000 in 1903, and yet its price has not noticeably increased. All the other factors, such as fodder for cattle, the octroi duties, the increase of rents, and other dues have increased the expense of selling the milk. The tendency has therefore been to obtain more milk from each cow individually, and instead of 6 or 8 liters, some 20 or 30 liters. To do this it was found necessary to have cows which had calved for the seventh or eighth time, and to feed them on certain waste products, such as malt or various oils produced by the colza plant. The milk furnished by such means may look very well, but is often enough indigestible, and does not suit the stomach of an infant.

Dr. Josias, physician at the Children's Hospital, uses the following preparation in whooping-cough:

Benzoate of soda, 1 to 3 grammes;
Orange flower water, 10 grammes;
Lime tree water, 70 grammes;
Syrup of Desessarts, 30 grammes.

A teaspoonful every hour.

Dr. Variot, who is also a physician at the Children's Hospital, uses the following:

Bromide of potassium, 8 grammes;
Tincture of valerian, 8 grammes;
Distilled water, 250 grammes.

For children up to two years old, 3 teaspoonfuls; from two to five years, 3 dessertspoonfuls; up till ten, 3 large spoonfuls.

The epidemic of typhoid fever which has existed in Paris since the latter part of February has now ceased. The largest number of cases seen in a week was 177. The mortality seems to have been larger than usual. In one street there were 22 cases, and two deaths took place within the space of twenty-four hours. The *Matin,* a morning paper, had taken up this matter, and it was found that the epidemic was due to a case of typhoid fever in Normandy, in the watershed of the Avre, one of the streams which furnishes the Paris water-supply. This case was only discovered after two weeks by the medical inspector, and the dejecta had of course not been disinfected. The epidemic spared the greater part of Paris, cases being found in the 16th, 17th, and 13th arrondissements. Most virulent editorials were written by the *Matin* against Dr. Monod, the chief of the Bureau of Hygiene, and against Bechmann and Martin, who have the control of the water-supply. The Paris water-supply is certainly much better than it was twenty years ago, and better than that of most cities, but it sometimes proves inadequate during the warm weather, and then filtered Seine water is used.

It is interesting to note the expenses incurred by the Assistance Publique in Paris to pay its employees and physicians in the various hospitals. Out of a total outlay of 37,180,956 francs, 31 per cent, or 11,396,983 francs, is employed for salaries. The medical and surgical staff come in for only 1,500,000 francs, the directors and managing personnel cost 2,652,000 francs, and 6,400,000 francs is paid to the nurses. The amount employed in this manner is certainly very large, and now that it has been decided to create special tuberculosis pavilions it cannot help but increase.

—THE—

Therapeutic Gazette

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Original Communications.

*THE SURGICAL TREATMENT OF ABORTION.**

BY FRANK C. HAMMOND, M.D., PHILADELPHIA,
Demonstrator of Gynecology, Medical Department of the Temple College, and Chief of the Outpatient Department for Diseases of Women, Samaritan Hospital.

Threatened abortion does not come within the province of this paper. It is always desirable to determine when a threatened abortion becomes inevitable, for if its prevention is no longer possible the treatment should be radically altered.

The signs which usually denote an unavoidable expulsion of the ovum are not always to be depended upon. If the hemorrhage is persistent, abortion will usually occur; but even in spite of bleeding which continues for a variable length of time, or returns at intervals during the entire period of gestation, the pregnancy may go to term. The ovum is usually expelled when the cervix becomes markedly softened and the os dilated; yet the os may dilate sufficiently to admit two fingers, retract, and pregnancy continue its normal course.

If portions of the uterine contents should be expelled it would seem that abortion was surely inevitable, but Playfair, Charpentier, Doloris, and others have reported cases in which pieces of decidua were expelled from the uterus without the interruption of pregnancy. In the case reported by Playfair[1] four

*Part of a symposium on Abortion, read before the North Branch of the Philadelphia County Medical Society, April 14, 1904.

or five fragments of decidua, each as large as a fifty-cent piece, were cast off in the third month of pregnancy as a result of the introduction of a sound into the uterus.

Rupture of the membranes and death of the embryo are the only two conditions which can be said to render the abortion almost inevitable; although cases can be recalled in which the liquor amnii was resupplied after puncture of the pregnant uterus with the trocar, and the retention of the ovum after the death of the embryo for an indefinite period.

If the hemorrhage is persistent the os dilates; if the ovum is felt presenting within the os, if the pain is marked, and most important of all if portions of the ovum are expelled, the abortion may be pronounced inevitable.

Hemorrhage is less to be feared as the seventh month is approached, as the uterine decidua is more readily cast off in late than in early abortions. Before the formation of the placenta the hemorrhage comes from the entire internal surface of the uterus, but after this has taken place only from the site of the placental attachment.

If the abortion be inevitable of course the fetus dies, or is already dead, and the practitioner is concerned with the interest of the mother alone. The chief immediate dangers are hemorrhage and septicemia. The latter may be general, or limited to a local pelvic inflammation, which may terminate in resolution or suppuration.

Tetanus has occasionally followed abortion. The fatality of criminal abortion is unfortunately very large. Be suspicious of every case simulating acute articular rheumatism when the patient has recently aborted, for the condition is much more likely to be a suppurative arthritis; although this condition is a rare complication it should be borne in mind. The best treatment for suppurative arthritis is free incision and drainage under rigid antiseptic precautions.

The remote dangers of abortion are inflammatory disease of the uterus and adnexa, with the resultant train of pelvic and reflex symptoms.

The diagnosis of abortion rarely presents any difficulties. I recently saw a patient with Dr. Wm. McKeage, in whom however some difficulty in diagnosis had arisen. The patient was an Italian, fifty years of age, from whom it was impossible to secure a menstrual history. She had been bleeding for two weeks, which was accompanied by more or less fetor. Two Italian physicians had made a diagnosis of malignant disease of the uterus and advised hysterectomy. There was an extensive bilateral laceration of the cervix, with marked erosion; the uterus was enlarged and freely movable. The odor to the discharge, however, appeared to be characteristic of placental decomposition rather than of malignancy. Temperature normal. The cervix and its canal were completely covered with a metallic substance which closely adhered to the surfaces. One of the preceding physicians had swabbed out the uterus to check the bleeding, and this was evidently a deposit from the solution used, in all probability tincture of the chloride of iron. I thoroughly curetted the uterus, removing small pieces of decidua, and packed with iodoform gauze. There has been no return of the bleeding nor of odor.

The prognosis of abortion depends in great part upon the treatment. If a rigid antiseptic technique has been observed, and every case submitted to an aseptic curettage, properly done, the mortality would be *nil;* this of course does not include criminal abortions. The immediate danger of hemorrhage and infection, as well as the chronic diseases following subinvolution of the uterus, lend to abortion peculiar importance.

In the treatment of inevitable abortion by the general practitioner without special knowledge of gynecologic technique, the best results will probably be secured by an expectant plan of treatment, so long as there is no fever, no excessive hemorrhage, nor odor of putrefaction to the discharge.

Winckel,[2] with an experience which is the fortune of few, uses the following language: "I maintain that if, in an abortion or premature labor, fragments of fetal membranes or placenta have remained behind, we are justified and obliged to proceed to operative interference only when there are severe hemorrhages from the uterus, or fever, or sloughing." But why wait for fever or sloughing? The physician should closely watch every case of abortion and detect

at the earliest possible moment the retention of débris, and immediately empty the uterus. The uterus may be emptied by the fingers, with the placenta forceps, curette, or all three. The work should be thoroughly done. If the physician does not consider himself sufficiently skilled to employ such surgical procedures, then in duty bound to his patient he should call in a colleague upon whose skill and judgment he can rely. Frequently the retained material does not give rise to hemorrhage, fever, or sloughing, but acting as a foreign body is the foundation of pelvic inflammatory disease, which may eventually lead to invalidism. In 1897 I operated upon a woman, forty-three years of age, for bilateral laceration of the cervix, lacerated pelvic floor, and a large subinvoluted, freely movable uterus; the uterine cavity was literally filled with débris; no disease of the adnexa. This patient admitted to over twenty abortions self-induced with a catheter. It is remarkable how kind Providence is to some women! How many women do we see who date back their pelvic symptoms to an abortion? The percentage is quite large. Hence in the early recognition and proper treatment of inevitable abortion, preventive medicine plays an all-important rôle.

The active plan of treatment is certainly to be preferred, the danger is less, the mental anxiety of the patient is sooner relieved, her recovery is more rapid, and uterine involution takes place in a shorter time. The rapid recovery is an important matter, especially for those women who are compelled to work. Whenever the abortion is inevitable, and the cervical canal is open, the uterus should be immediately emptied, under anesthesia. In abortions in the first three months, the decidua vera, not yet adhering to the decidua reflexa, is very frequently retained after the ovum is expelled; therefore in these cases the curette must be used, and it can be used so that the decidua can be removed without any injury to the muscular wall of the uterus.

Cases of sepsis *post partum* and *post abortum* have the same pathology and require the same treatment.

Of all the forms of septic trouble after abortions, sapremia is the least dangerous and the easiest cured. It should not be forgotten that the putrid material in the uterus affords a favorable soil for the development and propagation of septic germs, so that when a patient comes under observation she may have been subjected to a mixed infection. The treatment of sapremia consists of emptying the uterus of its putrid contents and thorough disinfection of the parturient tract with intra-uterine douches of normal saline solution or formalin 1:1500, or sublimate solution 1:3000 or 4000, followed with normal salt solution to avoid the danger of mercuric poisoning; also lysol or creolin. Hegar[3] considers chlorine water the best antiseptic for this purpose, and uses it in a 12- to 25-per-cent solution. I recently saw a patient in whom the sapremia was due to a lochia metra. The temperature was 102° F., pulse 112. An intra-uterine douche of lysol was given, followed in a very few minutes by a profound chill, in which the patient had a marked collapse, the temperature within two hours rising to 104° F., the pulse 185. Within ten hours the temperature had fallen to 97° F., and the pulse to 96.

The treatment of septicemia will vary according to the character of the infection. It may be local, with a view of removing or destroying germs at the point of infection; or general, by the employment of measures to neutralize the introduced bacteria or their toxins, and to fortify the system in its struggle against the infectious germs; or surgical, by use of measures to remove collections of pus and organs that may have become a menace to the welfare of the patient.

The difficulties of differentiating puerperal fever are peculiarly great when typhoid fever makes its first appearance at childbirth. Junge[4] has had an experience of two cases of typhoid fever deceptively simulating puerperal fever, six of mastitis, two of acute arthritis, one of pharyngitis with a dermatitis and nephritis, and one of infarction of the lungs.

Bacteriology does not as yet occupy the peculiar niche it should in determining the treatment of puerperal infection. It cannot be carried out by every practitioner, and it does not determine the virulence of the germs in individual cases.

Antistreptococcic serum has fallen into disrepute, as it has not produced the results so ardently claimed by its early advocates.

For some years Hirst[5] has administered nuclein routinely, as suggested by Hoffbauer, as part of the treatment of puerperal sepsis, in order to produce an artificial hyperleucocytosis; combined with local disinfection, stimulation, support, and in suitable cases with operative treatment.

Intravenous injections of normal salt solution have proven especially efficacious in septic conditions.

Sufficient data has not been obtained to give positive results of the advantages gained by the employment of intravenous injection of formalin. It may be tried in desperate cases when it is evident that the patient will succumb to the disease unless it can be arrested. Montgomery considers it would be preferable to combine the formalin 1:10,000 with normal salt solution.

Quinine may be given in suppository, 5 to 10 grains three or four times a day; strychnine, digitalis, and atropine are preferably administered hypodermically as the indications arise. The patient should have as much food of an easily digestible character as she can assimilate, and as much alcohol as she can consume without showing its physiologic effects. To bridge the patient over emergencies ammonium carbonate in large doses by the bowel, and nitroglycerin hypodermically, may be required.

The most perplexing problem we have to solve in the treatment of puerperal sepsis is, when is surgical intervention necessary? When operations are performed early many organs will be needlessly sacrificed, and if performed late the mortality will be increased.

In septicemia we do not find the gratifying results subsequent to intra-uterine manipulation that is obtained in sapremia. Curettage is too frequently productive of great harm. In septicemia nature makes a noble and often successful resistance by throwing out a protective zone of inflammatory tissue at the point of infection. Leucocytes swarm to her assistance and take up their burden of the fight to resist the aggressive germs. To curette such cases simply means that the infection, instead of being localized, is made general. It has been demonstrated that streptococci pass through the uterus in some cases in a very few hours, hence if the curette is used in such infection who can say when it is too late? The suggestion of Whitridge Williams is a good one, that if on examination of the interior of the uterus a smooth surface is found, it is a streptococcic infection; if it is a rough surface, it is usually a mixed infection or sapremia. If the former a "let-alone" policy is to be pursued, if the latter the curette and intra-uterine douche are indicated. Macharg[6] has contributed a valuable analytic account of fifty-seven cases of puerperal infection. Of these thirty-one proved fatal, and in twenty-one post-mortem examinations were obtained. The results of these autopsies are carefully tabulated and the post-mortem appearance described. The results of the bacteriological examination showed that the streptococcus pyogenes is the most common exciting cause of puerperal infection, the other organisms playing only a slightly subordinate part. The routine treatment in each case consisted in the administration twice daily of antiseptic intra-uterine douches, and in drainage of the uterine cavity by loosely packed iodoform gauze. Complications were dealt with as they arose. Quinine in large doses (20 grains every four hours) was essayed in a few cases; but to say nothing of the gastric irritability frequently produced, the results were not encouraging. In some of the earlier cases curettage of the uterus was performed. This procedure, however, was so often followed by rigor and increased pyrexia that its use was entirely discontinued, excepting in those cases where there was retained tissue in the uterus. It is remarkable to find that only two such cases occurred, both of which recovered.

Pryor advocates a plan of treatment in cases of puerperal sepsis by which he hopes to combat the disease within the pelvis and also counteract the general infection. He seeks to secure this result by isolating the infected uterus between masses of iodoform gauze, and by local and systemic iodism to destroy the cocci locally and systemically. His technique consists in thoroughly curetting the uterus and packing with iodoform gauze. The posterior cul-de-sac is opened by a broad incision, when any accumulated fluid will escape. The pelvic cavity is irrigated with normal salt solution, and iodoform gauze is packed into the pelvis from side to side, in apposition with the posterior layers of the broad ligaments and uterus.

Though an admitted fact that septic

infection rapidly passes from the uterus, it is a matter of experience that a sudden drop in temperature may follow prolonged irrigation of the pelvic or peritoneal cavity. This result then cannot be ascribed to iodine, neither can it in those instances where sterilized gauze is used.

Norris[7] thinks that Pryor's procedure may find its place among the methods of preventing grave cases, when he (Pryor) teaches us to differentiate and recognize the class of cases that drainage of the cul-de-sac will save by preventing a local peritonitis from becoming a general and fatal peritonitis; and that it is a very dangerous method to place in the hands of the inexperienced practitioner. If it is to be of avail Clark[7] believes that it must necessarily be performed early, and who is able to say in the beginning of any infection that it is of such a lethal type as to demand such radical measures? It is a fair question whether the results secured have not been due to the drainage *per se* and not at all to the iodine; for much of the good obtained consists in the evacuation from the cul-de-sac of infected serum. Yet we cannot always ascertain by bimanual examination the presence of serum in the cul-de-sac.

Localization of infection may result in abscess formation in the uterine wall, in the pelvic cellular tissue, in the tube, in the ovaries, or in multiple abscesses in various parts of the body. Such a local collection should be deemed an indication for prompt surgical interference. Parametritic abscesses should be opened as soon as fluctuation appears, rather than allowing them to open spontaneously. Not uncommonly, in cases of parametritis, on palpation a semifluctuant sensation is conveyed to the examining finger which may lead one to suppose that pus is present; whereas upon opening the supposed abscess *per vaginam* or through an abdominal incision the tumor is found to be a mass of inflammatory exudate without pus formation, and when cut into only a small amount of serous fluid will escape. Incisions into these masses frequently give as good results as if a considerable quantity of pus had been evacuated, similar to ordinary cases of cellulitis in other portions of the body.

When pus tubes or ovarian abscesses can be detected by bimanual palpation their removal is urgently indicated. Whether the patient be operated upon through the abdomen or *per vaginam* will depend upon the particular case. When readily accessible from below, free vaginal incision with subsequent packing of the abscess cavity with gauze is to be preferred. Many patients so treated make a perfect recovery with no subsequent symptoms. In those patients in whom an abdominal operation would probably result fatally, it is best to evacuate the pus *per vaginam,* and when the patient has sufficiently recovered to stand a laparotomy, the abdomen may be opened and more radical work done.

"There is a restricted field for hysterectomy in those cases in which the septic process has not extended materially beyond the uterus, but has given rise to abscess formation within its walls."[8] Again, hysterectomy will be indicated when the uterus has been subjected to great traumatism in criminal abortions where tents have been pushed through the uterus and allowed to remain.

The continuance of symptoms of sepsis when local manifestations are not recognized will justify incision to determine the presence of secondary sources of infection.

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STRYCHNIA AS AN EVACUANT.[1]

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The importance of regularly and thoroughly emptying the intestinal canal can scarcely be overestimated, since the excrementitious matter thrown off through it, if retained, would inevitably result in the death of the subject. Failure to evacuate

[1]Read before the Alabama State Medical Association, Mobile, April 19 to 21, 1904.

the bowel at regular and proper intervals leads to the reabsorption of a large percentage of the matter prepared by the system for evacuation; and as these products are extremely poisonous to the system, their retention and absorption is the active or exciting cause of many diseases. The occurrence of autotoxemia at the beginning of or during the progress of any disease aggravates or intensifies that disease. Cleansing the alimentary canal of the products of waste and keeping it free from such accumulation is one of the essential steps in the treatment of disease, therefore any addition to the agents that may be advantageously employed in the accomplishment of this all-important step should deeply interest all physicians. I wish in this paper to call attention to one such agent, not a new one, but one as old as the hills, and one whose action is so well known that I could scarcely say anything new about it. However, I hope to call attention anew to some things that are so old that, if they have not been forgotten, they have at least been allowed to fall into disuse.

In the normal evacuation of the intestinal canal two principal forces are concerned, two things are essential, namely, secretion, or a moist state of the intestinal contents, and peristalsis; and one of these is equally as necessary as the other. Either being absent, evacuation does not occur; either being deficient, the evacuation is correspondingly incomplete. Torpor of the intestinal movements, constipation, is almost universally attributed to deficient secretion, and following out that idea the remedies employed to overcome it are such as stimulate secretion of the glands which empty their products into the intestinal canal or which bring fluids into the canal by osmosis.

My observation has convinced me that constipation is oftener due to failure of peristalsis than to deficient secretion. I think this is borne out by the fact that a large accumulation of fecal matter is found in the colon in such cases. Much of this matter was secreted, or excreted, and had there been sufficient peristalsis, it would have been evacuated. While it is found in the colon, in hard, dry masses, it was not in that state when freshly formed, but only became so after being imprisoned in a torpid colon sufficiently long for the liquids to be absorbed from it.

It appears that many of the influences causing disease in the human system exert a sedative influence on the sympathetic motor centers, thus diminishing the movement of all the structures dependent upon these centers for motor impulses. This blunting impression falls with especial weight upon the intestinal canal, since motor impressions transmitted to it originate almost entirely from the motor centers of the sympathetic system. As a consequence, deficient peristalsis, manifesting itself by incomplete alvine dejections, is an early symptom in almost all diseases. This may or may not be accompanied by deficient secretion. If secretion is also deficient, the constipation is more pronounced, but no matter how abundant the secretion may be, if the sympathetic motor centers are so benumbed as to be insensible to impressions carried to them, the intestinal tube becomes an inactive, motionless mass and effectively imprisons its contents.

The number of agents used in the treatment of disease for the purpose of promoting secretion is very great. As a rule these are also depended upon to excite peristalsis. While the mercurial and vegetable cathartics usually employed to stimulate intestinal movements promote secretion, they do excite peristalsis. But *how* do they do this? It is not by direct influence they exert on the muscular coats of the intestine, neither do they *directly* stimulate the motor centers; therefore it must be by reflex action. The bile is probably the normal stimulant of intestinal motion, and substances used as cathartics doubtless act in the same way. These substances irritate the terminal filaments of the sympathetic motor nerves distributed in the intestinal mucosa; this irritation is transmitted to the centers, and there a motor impulse is generated and reflected to the point from which the irritation came, and in this way part of the intestinal tube is set in motion. If the irritant acts on only a small area of the intestine, motor impulses are reflected to a correspondingly small area, but if the action of the irritant affects a more extended area, motor impulses are transmitted to a greater length of the tube.

Peristalsis is excited either by the chemical action of the agent employed, by the irritating qualities of the secretion it induces, or by mechanical distention of the

intestine by hypersecretion. In either case there is irritation of the motor nerves supplying the intestinal mucosa; this impression is transmitted to the spinal centers, a motor impulse is generated and transmitted to the site of the irritation. In order that the entire intestinal canal be affected and general peristalsis excited, it is necessary that the irritation be continued longer, made more intense, or extended to more surface, thus involving a larger number of nerves. The readiness with which general peristalsis can be excited depends upon the conditions of the nerve centers, upon the extent of surface and condition of the part to which the irritant is applied, and upon the degree or intensity of the irritation.

If complete paralysis exist, of course no amount of irritation will excite motion. Where paralysis is only partial, or where the centers are benumbed by diseases or have their sensitiveness reduced by powerful sedatives, a high degree of irritation is necessary to induce peristalsis, and the agents that excite peristalsis by irritation of the terminal nerve filaments are frequently insufficient to excite such action.

In most diseased conditions peristalsis is very deficient, and in some it is entirely suspended for prolonged intervals. In such conditions, if a remedy of that class that greatly increases secretion into the upper part of the intestinal canal be given, this portion of the tube is overdistended before the irritant is distributed over sufficient surface, and consequent motor impulse generated, to excite peristalsis throughout the entire canal. This overdistention and irritation causes violent contractions of the part of the canal involved, but as the intestine below is so entirely motionless a fold or sharp bend obliterates its lumen and completely blocks the downward passage of its contents. The motor centers continue to respond to this irritation, and repeated violent contractions of the tube occur, but since the contents cannot be propelled downward, they are forced up into the stomach. This is often seen after anesthesia, especially in section cases. In such cases the centers controlling intestinal motion are brought into a state of intense sedation, if not partial paralysis. This condition frequently continues for several days, with an entire absence of intestinal motion. Most surgeons whose work I have observed, on the day they wish the bowel to act, begin to give a saline cathartic, and repeat it at frequent intervals until the desired result is obtained. These saline draughts, by their osmotic action, bring into the stomach and the first few feet of the intestine below it a free flow of fluid. This fluid is an irritant to all parts of the mucous membrane which it reaches, but as the tube lies in numerous folds and is so completely inactive, the passage of this matter down the tube is much delayed, and until it is distributed downward to a considerable extent enough of the surface is not irritated to cause peristalsis throughout the entire length of the tube. Therefore, frequently for hours before general peristalsis is excited to a sufficient degree to secure evacuation of the intestinal contents, there has been such a storm of irritation and consequent motor impulse in the upper part of the intestinal tube as to force the bile and other fluids from the first few feet of the intestine up into the stomach. This, of course, has been attended by severe colic, nausea, and other marked discomfort.

In my experience there are few conditions that make it best to do indirectly what can be done directly. It seems to me to be rather a slow and awkward thing to depend on reflex irritation to induce peristalsis when it can be excited by *direct stimulation of the motor centers.* Intestinal motion excited by irritating substances in the intestine is confined mainly to that portion of the tube containing the irritant, and that particular section of the tube is often thrown into violent contractions before the sections below it are stimulated to such a degree of motion as to permit the contents of the bowel to pass downward. Thus we have a local hyperperistalsis attended by severe griping, colic, retrostalsis, and vomiting. These substances chemically irritate the part of the intestine which they first reach, or if they are not chemical irritants themselves, the secretion they induce proves to be such. The liver and other important glands empty their products into the bowel near the stomach, and when there is deficient peristalsis this portion of the tube becomes overfilled and highly irritated, and, in fact, is thrown into violent contraction, before the irritating substance is distributed down the bowel to a sufficient extent to induce motion of its entire

length. The intense colic, vomiting, and other distress which are thus induced have justly prejudiced many persons against the use of purgatives. This ought not to be, and with proper precautions can be avoided. Physiologists teach us that waves of peristaltic motion set in at the pylorus and extend down the entire length of the tube. This is doubtless true in health, since these *waves originate because of the normal activity of the motor centers and are transmitted throughout the entire length of the tube,* but when the motor centers are benumbed by disease, these normal waves cease or are much less pronounced. In this condition, if it is sought to excite peristalsis by the introduction of irritating substances into the intestinal canal, that part of the canal to which the irritant is applied will first be thrown into active motion. The contractions of the tube thus induced urge the irritant downward with greater or less speed, but as these substances make their impression upon each action of the tube only as they reach it, and as the motor impulses called out by this irritation are reflected to only that part of the tube from which the irritation came, the tube *is not thrown into motion as a whole, or at once,* but section by section, and only as each section receives the motor impulses transmitted to it in response to impressions made by the irritant upon the motor nerves of that particular section.

What I have said thus far is more as a preface to what I now wish to say about the subject of this paper.

Strychnia is an excitomotor stimulant and exerts its principal effects upon the sympathetic motor centers. Muscular structures dependent upon these centers for motor impulses may be thrown into active motion without affecting the system to such a degree as to bring on contraction of the voluntary muscles. Strychnia has an elective action for the involuntary or unstriped muscular fiber, and as the muscular coats of the intestine are composed of this class of fibers, the entire length of the intestinal tube may be simultaneously thrown into motion by direct stimulation of the sympathetic centers by this drug. Peristalsis induced in this way corresponds exactly to that of health—that is, it occurs because of the artificially induced *activity of the motor centers;* and motor impulses generated in response to this artificial stimulus are transmited *in a uniform degree to all the structures that would receive them if the centers were acting normally.* The quantity of strychnia required and the frequency of administration depend mainly upon the degree of lethargy or insensibility of the motor centers, but when strychnia is administered in sufficient quantities and at proper intervals, active peristalsis can be excited and kept up as long as desired, provided the nerve centers are in condition to respond to any kind of stimulation. If strychnia be administered with the mercurial or other secretion-producing agents, each does its part of a necessary work in bringing about the conditions essential for normal evacuation of the bowel. The intestinal canal, throughout its entire length, is thrown into normal or hypernormal motion by stimulation of the motor centers by the strychnia. As soon as the secretion-producing agent begins to pour its product into the canal, this secretion and the other intestinal contents are gently and gradually but certainly propelled downward. *There is no overdistention of the bowel at any point, consequently no violent contractions, no retrostalsis, vomiting, colic, or other distress.* In other words, the conditions essential to normal evacuation of the bowel have been in reality artificially induced, and no more distress or discomfort accompanies the act than if no artificial means had been used in its induction. The dose of strychnia for this purpose varies from 1/8 to 1/30 of a grain, given at intervals of two to three hours until four to six such doses are given. The susceptibility of different individuals to strychnia varies considerably, but this can be estimated before administration with a fair degree of accuracy. The body weight, age, height, the tonicity or flabbiness of the tissues, as well as the degree of torpor or insensibility of the motor centers, are the points to be considered. If, say, 1/20 of a grain is estimated to be a proper dose for a person weighing 130 pounds, it should be increased or decreased in proportion to the increase or decrease in weight. Young persons are much more susceptible to its action than old ones; short, compactly built persons are also more susceptible than the tall, loosely built. The tonicity or lack of tone of the tissues is an important determining fac-

tor. Persons who have lost weight and whose tissues are flabby and relaxed require much more than those whose tissues are in fair state of tone.

The condition of the sympathetic motor centers cannot be estimated as accurately as the other influencing conditions, but experience leads to a fair degree of accuracy in this also. Persons whose nervous systems are profoundly impressed with any depressomotor toxic substance require larger doses than those not thus impressed.

A good example of these may be seen in persons impressed with morphine, either temporarily or habitually. The value of strychnia in obtaining alvine dejections in the latter can hardly be overestimated, and its proper employment in such cases will greatly reduce the mortality of this class of patients from other diseases. All authorities agree that the habitual use of narcotics greatly increases the liability of death from any acute disease with which those addicted to their use may be attacked, and it is generally conceded that when that disease is pneumonia, typhoid fever, or dysentery, the case is well-nigh hopeless. This is mainly due to the great difficulty experienced in securing efficient elimination through the intestinal canal. Few remedies act with any degree of efficiency when the system is impressed with opiates, and as these cannot be dispensed with in persons habituated to their use, the physician is almost entirely disarmed. By the administration of strychnia in sufficient doses this difficulty may be largely if not entirely overcome, and the bowel may be made to act as promptly and efficiently as if the opiate were not being used. In this way active elimination can be secured and the chance of recovery in such cases greatly improved. Strychnia has the power to stimulate peristalsis, notwithstanding the opposing action of opiates, and as the absence of peristalsis is the chief obstacle to action of the bowel, strychnia furnishes the key to success in such cases.

When it is sought to move the bowel after anesthesia, if a full dose of strychnia is given one hour before the usual saline, peristalsis is thereby excited, and the saline acts more promptly and with very much less distress. It will rarely be found necessary to repeat the dose of either, but should the case require the repetition of the saline, the strychnia should also be repeated. In fact, it would be a boon to humanity if it were observed as a general rule to administer strychnia in connection with all agents where intestinal evacuation is the object sought.

In the ordinary bilious conditions, where a mercurial or vegetable cathartic is prepared to be given in, say, four potions at intervals of two to three hours, the addition of 1/20 of a grain of strychnia to each potion is about the correct quantity for an average adult, and I feel sure that any physician who will try it a few times and observe the results will continue its use as a rule in practice.

In the country districts, or where physicians are in the habit of carrying their medicines with them, a convenient form in which to carry strychnia is in a powder made by trituration of one part of strychnia to nineteen parts of sugar of milk, thus making one grain of the powder represent one-twentieth of a grain of strychnia. In this form it can be measured with sufficient accuracy by sight to be safely given, which overcomes the objection that the drug is too concentrated to be handled except where accurate means of dispensation are at hand. Tablet triturates or granules of almost any strength may also be obtained for stomach administration. For hypodermic use, of course, the accurately made tablets are most desirable.

INTERNAL HEMORRHAGE FROM ECTOPIC GESTATION WITHOUT RUPTURE OF THE SAC.

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The more careful study of pregnancy and its pathological manifestations has led to the early recognition of ruptured tubal gestation, and not infrequently to its determination prior to rupture.

An appreciation of the gravity of such a lesion demonstrates the importance of early diagnosis and prompt treatment. I do not propose in this paper to enter upon the discussion of the means of arriving at an early diagnosis, but will utilize the occasion to call attention to the possibility of grave internal hemorrhage without rupture of the gestation sac.

The escape of the fetal contents through the abdominal end of the tube was early

recognized, and was called to the attention of the profession by Tait under the designation of tubal abortion. Such a termination is usually followed by profuse bleeding. The evacuated cavity is generally filled with blood, which clots and finally thus arrests the hemorrhage. Occasionally the separation of the fetal sac may not be complete, but hemorrhage occurs from the partial separation which makes its exit from the abdominal end and causes an extensive hemorrhage, and, finally, with the weakened circulation may result in the formation of a clot in the tube, which arrests the hemorrhage and saves the patient.

On the 29th of June, 1903, I saw with Dr. E. Q. Thornton, at her boarding-house, a woman about thirty-five years of age, mother of two children, who had menstruated last in April and again a few days before she came under observation, and had had a continuous flow since, attended with attacks of severe pain in the lower abdomen. At one time, when sitting upon a vessel, the pain became very severe and everything became black before her eyes, so that she had to be helped back to bed. A small portion of membrane was discharged with blood from the vagina. Dr. Thornton had made the diagnosis of ruptured tubal gestation, and was desirous of prompt treatment. Examination revealed a resistant mass to the right of the uterus, which I could not distinctly outline because of the abdominal tenderness. I had no hesitancy in agreeing to the diagnosis of ectopic gestation, but from the appearance of the patient did not think the shock sufficient to indicate either rupture or tubal abortion, and fearing that the pain had indicated a partial rupture which might at any time become complete, with dangerous hemorrhage, advised immediate operation. We had her removed to St. Joseph's Hospital, and operated shortly after her arrival.

Under chloride of ethyl anesthesia an incision was made through the posterior vaginal fornix, from which dark fluid blood was discharged. Through this opening the tubes were explored, and the mass in the right recognized as a gestation sac. The abdomen was opened and a large quantity of blood evacuated. The left appendages were adherent, but otherwise normal; the right tube presented a sac occupying the outer half of the tube, rupture. The fluid had escaped by the end of the tube, but an abortion had not taken place. The hemorrhage had evidently occurred slowly, so that she had not shown evidence of profound shock. A subsequent investigation disclosed that portions of the sac had become extremely thinned, and at one place a small rupture had probably exposed the villi, from which bleeding had occurred, as well as from the abdominal ostium. The clot in the tube had without doubt arrested the bleeding and prevented a fatal result. The operation was followed by an uneventful convalescence.

Another class of cases in which hemorrhage occurs without rupture are those in which the chorionic villi have penetrated the overstretched tubal wall and bled from their extremities through the peritoneal surface of the tube. These villous projections, as Bandler asserts, may be so small as only to be perceptible by the microscope, and yet cause a dangerous hemorrhage.

Such a condition is well exemplified by the following case: Mrs. H. entered St. Joseph's Hospital February 24, 1904, with a rather indefinite history. She looked quite anemic, complained of soreness over the abdomen, but no marked tenderness or rigidity. A pelvic examination disclosed a retroverted uterus, but little more could be determined. A blood examination showed the red blood-corpuscles 3,200,000, white 20,000, with hemoglobin 70 per cent. Her temperature upon admission was 99°; two days later it was 100°; the pulse ran from 96 to 104. This information was all we were able to obtain prior to operation. Since we have ascertained that menstruation had been perfectly regular until January 16, 1904, when she suffered from severe pain in the lower abdomen for two days, followed by a bloody vaginal discharge, which was more or less continuous until her admission to the hospital a month later. She remained in bed but two days, but had attacks of pain when going about, which would "double her up." She kept about until the 20th of February, when she suffered from paroxysms of pain which would extend from the pelvis to the chest. She became exceedingly faint and was obliged to remain in bed, could not turn without excruciating pain, and continued in this condition until her admission.

to operation. The abdomen was found filled with fluid and clotted blood. The right tube was found occupied with a sac about the size of a small orange, which ruptured as it was being withdrawn, giving vent to clear fluid. I had supposed that we had to do with a ruptured gestation sac when the abdomen was opened, but the fluid discharged from the sac, and the freedom of the sac from clotted blood, disclosed that the hemorrhage had not come from within the sac, and the investigations of Dr. Bland have demonstrated that the projecting villi have been its origin.

The various forms in which hemorrhage can manifest itself within the peritoneal cavity, and the importance of its recognition, I have thought to justify the presentation of this paper.

The last cause of internal hemorrhage is so insidious, so capable of recurrence, and associated as it is with the danger of rupture and increased hemorrhage when the vital forces of the patient are most reduced, that it is doubly important that it should be determined.

ESERINE: A WARNING.

By Grant Gould Speer, M.D.,
Los Angeles, California.

Having seen this drug used most successfully by Dr. Eugene Smith, of Detroit, I have employed eserine in various conditions of the eye almost continuously since 1892. It has been found useful in reducing various ophthalmic conditions and inflammations either of primary or secondary origin; but its routine use has been to contract the pupil after it has a sufficiently long time been dilated with atropine, to insure a forcible removal of any posterior synechia, and I have had no ill effects primary or remote.

In 1902, no doubt contemporaneously with others, I discovered the usefulness of eserine in hay-fever. While using it in a case of phlyctenular keratitis its blending and contracting effect suggested its use in the case of my brother-in-law, who was suffering from a severe attack of hay-asthma. Cautiously applying a little to each nostril, the effect was magical; and unlike a similar application of cocaine, it was followed by no bad after-effects. I then began its use in the case of my wife, also a hay-fever victim, with such good results that we thought we had the remedy *par excellence*. In the early summer of 1903, following a winter of ill health from a severe bronchitis, she was again attacked by "rose cold," and eserine was again resorted to by dropping a drop into each nostril with an ordinary medicine dropper. After a short interval a word of complaint caused me to find her deathly white, getting cold, and covered with a clammy sweat. Her pulse was small and weak, and her condition alarming. She was at once placed with her head hanging over the edge of the sofa, and hypodermic injections of heart stimulants and black coffee given as rapidly as possible. She lost consciousness temporarily, but soon recovered, with no worse effects than a slight unsteadiness that lasted perhaps less than a couple of hours. Her sensations at the time were very vivid, and she recounts them as follows:

"A few moments after the application of the eserine I began to have a sensation of remoteness, voices seemed distant, and my mind seemed slow to act. This sensation increased, and I began to feel cold. I lay down, but steadily grew worse. There was a severe tingling in the extremities, and intense pain around the heart. For a few minutes I thought I was dying. As the pain and tingling subsided I tried to use my hands, but could not on account of their shaking. For a time I was very weak, but after a couple of hours was perfectly normal, with no after-effects of any sort."

A short time ago a recent victim of syphilis applied to me for treatment for hemicrania of the left side, which gradually involved the right side, causing redness of the conjunctivæ, but no active inflammation of the eyes. In spite of active internal antisyphilitic treatment, after three weeks he developed an iritis of the right eye. This was treated with antiseptics and atropine. In five days the acute symptoms abated, and I proceeded to contract the pupil, warning the patient that the medicine might cause pain in the eye. The pain appeared as predicted, but instead of the usual steady ache, it appeared paroxysmally. Making the applications at intervals, I busied myself at writing. Some time had elapsed after making the last application, when he said in a

natural tone, "Doctor, have you got electricity in this chair?" On deliberately going to him, I was much disturbed to find him blanched to his finger ends, and covered with a cold sweat. His eyes were staring and face apprehensive. The pulse was very irregular and scarcely perceptible. His head was lowered immediately, but water could not be had on the instant, and hypodermic injections could not be applied until the acme of the attack was passed. He never fully lost consciousness, and in less than an hour he was fully recovered.

My stock solution of eserine is two per cent, and not being used in large quantities is not always fresh. Its turning red does not appear to impair its qualities to any extent. The solution in the second case was probably below this strength. Finding the bottle nearly empty, the remainder was diluted with a solution of boric acid and rose water. The resulting action, both of blanching the conjunctivæ and contraction of the iris, was unusually slow, and it was after repeated applications that the startling manifestations took place. Such sudden effects of a potent drug are disquieting to the patient, and no matter how cool the physician may appear they are terrifying in the extreme.

Through a long use of this drug in patients in normal health no ill effects have been observed, but in these two debilitated patients, one having passed through a long winter of heavy coughing, and the other having lost appetite and sleep because of severe pain, the effects were such as no conscientious physician should voluntarily induce.

METEORISM FOLLOWING ABDOMINAL OPERATIONS.[1]

By A. P. Condon, M.D.,

Associate Professor of Surgery, Creighton Medical College; Gynecologist to St. Joseph Hospital; Chief Surgeon to Mercy Hospital, Council Bluffs, Iowa.

The object of this paper is to present the etiology and pathology of meteorism following abdominal section; to emphasize the importance of thorough ante-operation preparation of the patient; and to suggest a course of treatment when meteorism has occurred.

[1]Read at the annual meeting of the Nebraska State Medical Society, Omaha, Neb., May 4, 1904.

In a state of health the stomach and intestines contain a variable quantity of gas. This gas is provoked by the chemical decomposition of the food, especially by fermentation and the action of bacteria. Some of the gas, no doubt, comes from the air which is swallowed. There is a possibility of the alimentary mucous membrane secreting or excreting gas. This theory was advanced by a French author, but yet remains to be demonstrated. When from any cause there is an overproduction or accumulation of gas within the gastro-intestinal tract, the condition is known as meteorism or tympanites.

From an etiological standpoint meteorism can be classified under two heads:

1. An exaggerated formation or increased secretion of gas which can result from an alimentation too rich in hydrocarbonaceous substances, or from various causes favoring the formation of lactic and butyric acids, or from an increased activity of the mucous membrane.

2. Tympanites may arise from a defective or lessened expulsion of gas, which is due either to an obstruction to its free passage or to an enfeeblement or paralysis of the muscular tunics of the stomach, intestines, or abdominal wall. When the muscular contractility is decreased or lost the gas distends the walls, and after a time we have an enfeeblement or paralysis resulting.

Clinically we may divide meteorism into four classes:

Class 1. Meteorism in the course of nervous affections such as hysteria and hypochondria. Tympanites is such a frequent symptom observed in hysteria that it has been called the vapor malady.

Class 2. Meteorism occurring in diseases of the gastrointestinal tract in which the mucous membrane is the seat of inflammation, such as gastritis, enteritis, and typhoid fever.

Class 3 includes the meteorism met with in the course of some of the infectious diseases, such as scarlet fever, measles, pneumonia, etc., and which is, no doubt, caused by the toxins acting upon the muscles of the intestines and the nerves supplying them.

Class 4 is the meteorism of traumatic origin or postoperative meteorism. Tympanites is sometimes seen to follow injuries to the abdomen, and frequently misleads the surgeon into believing that visceral in-

jury is present when it is only a trauma to the abdominal wall.

Meteorism occurs frequently after laparotomy; it is one of the most trying and dangerous complications, and I believe one of the most difficult to manage. It is not only productive of much suffering to the patient, but is dangerous in the extreme *per se*. The question, no doubt, presents itself to your mind, why in a simple laparotomy with no preëxisting gastrointestinal disease should there be, as is often the case, so much meteorism?

There are a number of factors to be considered in the causation of meteorism following abdominal section. In opening the abdomen we produce more or less injury to the tissues, and especially to the nerves supplying the abdominal wall. When we consider the intimate connection of these nerves with the viscera by means of the sympathetic system, it is rational to suppose it probable that the injury to the superficial filaments can cause reflex disturbance in the deeper structures.

The other factors entering into the cause of meteorism are the exposure and manipulation of the intestines; the exudation of fluids into the peritoneal cavity; shock of the anesthetic and infection. All the above causes tend to produce a vasomotor paralysis, which is the key in the causation of meteorism; in other words, there is a local condition of shock, a relaxation of the muscular tone of the intestinal walls and abdomen—the result is meteorism.

I believe of all the causative factors the injury to the abdominal wall is the most important, for the meteorism seems to bear no relation to the amount of manipulation of the intestines, hemorrhage, etc., as I have seen the worst cases follow a simple section with little hemorrhage and no handling of the intestines.

Meteorism following abdominal section appears from a few to seventy-two hours after the operation. It may come on gradually or be quite sudden in onset. It may be general or limited to a part of the digestive tract; it is more frequent in the large intestine than in the small. The abdomen becomes globular in shape; the prominent bony points of the pelvis are obliterated; the base of the thorax is dilated; the skin over the abdomen is tight and glossy, and to the touch the walls present a uniform elastic resistance. There is intense abdominal pain and much difficulty in breathing. If there is disease of the heart or lungs fatal asphyxia may result.

We may have an acute obstruction during meteorism. Hallopeau reports a case (Traité de Pathologie) in which the distention produces a kink in the bowel, and the column of gas exerted sufficient pressure above to maintain a perfect occlusion. Up to six months ago a large percentage of my laparotomy cases suffered from meteorism. Working on the hypothesis that tympanites is due to a lessened muscular tone following a vasomotor paresis, in fact a general and local condition of shock, and knowing that ergot is one of the best remedies to overcome decreased contractility of involuntary muscles and flaccid condition of blood-vessels, I began the use of it hypodermically. I first used ergot as recommended by Dr. Livingston in an article which appeared in the *Journal of the American Medical Association*, March, 1903.

The ergot always acted promptly and satisfactorily, but the local effect was irritating and very painful, even when preceded by an injection of a weak solution of cocaine. A few months ago my attention was called to an aseptic, non-irritating fluid extract of ergot called ergone, which is manufactured by Parke, Davis & Co., and is the same strength as the official fluid extract of ergot. This I have used in twenty-one laparotomies; it is just as effective and has none of the irritating properties of the other preparations. Altogether I have employed ergot or the preparation ergone in forty-three abdominal operations. I have had no meteorism in any of these cases, and in reviewing their histories I find there was less postoperative nausea and vomiting, and general shock was markedly lessened.

In every case when possible I give, twenty-four hours before the operation, thirty minims of ergone hypodermically. This dose is repeated every eight hours for four days, when it is discontinued. I have never observed any untoward effects from ergone given in this way. I also give ten grains of betanaphthol and ten of salol the night before operating, to prevent excessive fermentation.

I am convinced that ergot, given as ad-

vocated in this paper, not only prevents the appearance of tympanites but of shock in general, and materially aids the healing of tissues. I do not hesitate to give morphine to control pain and restlessness if necessary. By preventing tympanites the danger of stercoremic intoxication is much lessened, the depressing action of the gas upon the heart and lungs is prevented, and the patient is saved from suffering much pain. By equalizing the blood-pressure and maintaining the muscular contractility shock and the chances for infection are lessened. It is an established fact that in shock the absorption of drugs by every route is retarded, which is another point in favor of ante-operative measures.

When meteorism has developed we have several remedies that are effective. Ergone and adrenalin chloride should be given and saline used subcutaneously. A remedy that I have employed with success is the physostigmine salicylate, used hypodermically in doses of one-sixtieth of a grain.

"Moszkowicz has found this drug magical in the relief of postoperative paralytic ileus. He expatiates on the dangers of this pseudoileus, which is one cause of death after laparotomies, and has also been observed after vaginal operations. The extreme distention of the intestines was promptly relieved, and in two cases the measure was life-saving. The blood-pressure was distinctly increased, the drug acting on the heart action like camphor" (*Journal of the American Medical Association,* August, 1903). In the treatment of these cases enemeta containing turpentine and the use of the high rectal tube should not be forgotten.

We have also an excellent therapeutic agent in electric lavage. This has been much used in the treatment of intestinal obstruction in France, and would seem to meet the requirements in meteorism better than drugs, for it produces contractions of the intestine by direct stimulation. For its manner of application I would refer you to the text-books on this subject.

To conclude, every operation, especially one that is likely to be attended with more or less shock, as, for instance, abdominal and pelvic operations, should receive a vasomotor stimulant before the operation. Ergone is probably the best, since the effects are not fleeting, there are no bad results attending its use, and it can be given subcutaneously. It is the duty of every surgeon to use all available means to prevent postoperative meteorism and shock, which is as necessary as the prevention of infection.

417 New York Life Building.

TREATMENT OF BRONCHOPNEUMONIA IN CHILDREN.

Northrup writes upon this subject in the *Medical News* of April 30, 1904. He gives the following summary how to cure a baby with bronchopneumonia:

1. Castor oil to clear the field of operation. It is the first aid to the injured.

2. Fresh air, cool and flowing. It reddens the blood, stimulates the heart, improves digestion, quiets restlessness, aids against toxemia. Regulate the temperature of air of the room inversely to that of the child. The patient's feet must always be warm, and the head cool.

3. Water, plenty, inside and outside. Temperature of the water as indicated by child's temperature.

4. Quiet and rest. Tranquilizing influences about patient. Undisturbed sleep.

5. Correct feedings to avoid fermentation and gas in abdomen. If there is need, high hot salines.

6. As to antipyresis. Water—no coal-tar products.

7. Heart stimulants. Fresh air, hot foot-baths. Relieving tympanites and crowding. Hot foot-baths and hot salines can be given in a cold room. Both can be given under the bedclothes.

Drugs.—Whiskey and strychnine. These are the first drugs mentioned in this paper, unless that household remedy, castor oil, be included. Promote general comfort in every rational way.

How to Kill a Baby with Pneumonia.—Crib in far corner of room with canopy over it. Steam kettle; gas stove (leaky tubing). Room at 80° F. Many gas-jets burning. Friends in the room, also the pet dog. Chest tightly enveloped in waistcoat poultice. If child's temperature is 105° F. make a poultice thick, hot, and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics and wait.

The Therapeutic Gazette

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Leading Articles.

THE DIET IN GOUT AND GOUTY STATES.

It is probably true that many practitioners do not pay sufficient attention to the diet of their patients, and that others attach too much importance to stringent regulations concerning it. Given a patient with moderate intelligence who has regarded his method of nutrition with interest, and it will often be found that he has a better conception of the things which he can eat without injury than it is possible for the physician to determine, even after he has examined him a number of times and studied his case with considerable care. In some instances it is distinctly advantageous to order the patient a definite outline as to diet, since by this means he carries out the whole method of treatment with greater accuracy than if stringent measures were not suggested, and also receives a powerful mental impression which cannot fail to be advantageous.

In connection with these questions we have read with interest an article upon diet in gout which is published by Dr. Arthur P. Luff in the *London Practitioner* for May, 1904. In this article Dr. Luff expresses the belief, in which we all share, that gout is a disease which is due to faulty metabolism, probably both intestinal and hepatic, as the result of which certain poisons are produced and lead to an auto-intoxication, which is an early factor in the development of the gouty condition. Aside from this definition of the elementary causes of gout, we think that Dr. Luff strikes the key-note of the question of diet in this disease when he asserts that no routine method can be adopted which is suitable to all cases, and that the nutritional conditions of the patient, his habits, his surroundings, and his mode of life constitute factors that must necessarily modify the treatment of individual cases. Not only must these factors be considered, but the conditions which lead up to the development of the disease must be taken into consideration. The third point of importance which he emphasizes is that the physician must give some consideration to the likes and dislikes of his patient, and he quotes Sydenham in saying that more importance is to be attached to the desires and feelings of the patient, provided they are not excessive, than to doubtful and fallacious rules of medical art. Again, he remarks that the researches of Pawlow show that a habit of digesting with ease certain kinds of food is acquired by the stomach, which learns to secrete a gastric juice appropriate to it, and for this reason certain changes of food may interfere considerably with the function of the digestive apparatus.

When we come to a discussion of the digestibility of food, it is pointed out that digestibility means not only the readiness with which a foodstuff may be utilized in the system, but the readiness with which it may be attacked by the digestive juices. Thus, new bread or new potatoes are usually swallowed in such masses that it is difficult for the digestive juices to permeate them, particularly if mastication is imperfect. As a result digestive disturbances ensue, and toxic substances are made, which could be avoided if these articles of diet were not used. So, too, with animal foods. If the meat fiber, which in itself can readily be digested by the gastric secretion, is so coated by an envelope of fat that the gastric juices cannot readily get at it, digestive disturbances are sure to take place. For these reasons it is urged

that simplicity of meals is perhaps more important than the exclusion of certain articles of diet which have generally been considered provocative of gout.

We are much interested, too, in another proposition of Dr. Luff which has considerable practical bearing upon this question. It is well known to most of us that Dr. Haig has strongly condemned the use of meat, fish, and tea by gouty persons on the ground that they contain uric acid. This, however, is contradicted by Luff. While he admits that certain gouty persons may be made worse by the use of meats, fish, and tea, he does not consider that this is any reason for supposing that all gouty persons are so affected, and he devises for those that are the term "physiological degenerates." It is evident to any observer that meat itself cannot be solely responsible for gout, for in those races which are chiefly carnivorous gout is practically unknown. Dr. Luff also thinks that the total exclusion of sugar from the dietary of all gouty individuals is in many instances an unnecessary hardship, unless perhaps the patient is fat, or suffers from glycosuria or from gouty eczema.

The important question of the use of alcoholic drinks by gouty persons is also considered. Dr. Luff is practically in accord with every writer upon this subject in the statement that gouty persons always do better without alcohol in any form. But there are some individuals who find that they get along better with a little whiskey or brandy, or light Moselle, although champagne is almost universally harmful. In elderly persons a moderate amount of pure whiskey undoubtedly does good in some instances.

It is interesting to note that the mere acidity of a wine is not in direct proportion to its gout-producing properties; indeed, it may be said that its gout-producing properties are in inverse ratio to its acidity. Thus, port wine stands seventh in the list of wines which are acid, whereas it stands first in the list of those which produce gout, while Moselle, the most acid of all these wines, stands ninth in its ability to induce gout.

The actual diet which Dr. Luff recommends for his gouty patients, when he considers it necessary to limit them to a strict régime, is as follows:

Morning: Half a pint to a pint of hot water, flavored with a slice of lemon-peel, should be slowly sipped immediately on rising.

Breakfast: A selection may be made from the following articles of diet, according to the taste of the patient: Porridge and milk, whiting, sole, or plaice, fat bacon, eggs cooked in various ways, dry toast or "zwieback bread" thinly buttered, and tea infused for three minutes, and then strained from the leaves. Fat bacon is digestible when grilled, but less so when boiled. Eggs should not be taken hard-boiled.

Lunch and dinner: Soups suitable for the gouty are vegetable purées, and soups made by boiling beef or mutton bones with vegetables, and subsequently removing the fat which separates on cooling. These soups should not be thickened with farinaceous substances.

The varieties of fish most suitable to the gouty are whiting, sole, turbot, plaice, smelt, flounder, gray mullet, and fresh haddock.

The birds that are admissible as articles of diet are chicken, pheasant, turkey, and game (not high).

Butcher's meat, mutton, lamb, and beef, should be taken at only one meal in the day, and then in moderate quantity. Two vegetables may be taken at both lunch and dinner. Any of the ordinary vegetables may be taken, except those previously mentioned as best avoided; but those considered most likely to prove beneficial to gouty subjects are spinach, Brussels sprouts, French beans, winter cabbage, savoy cabbage, turnip tops, turnips, and celery. Potatoes may also be taken in moderate quantities. Stewed fruits, or baked apples or pears, may be taken every day at one meal.

Green vegetables as salads may be taken, provided oily dressings are avoided. A simple savory may, if desired, be taken at the end of dinner, or a small quantity of cheese, if well masticated, and if free from the penicillium fungus or mold.

Night: Half a pint to a pint of hot water, flavored with a slice of lemon-peel, should be slowly sipped before retiring to bed.

With regard to persons who are disposed to gout, but are not actually suffering from it, the usual mixed diet may be taken, but they should limit the starchy articles of food, and should avoid all rich sweets, rice, tapioca, and sago. Thin and

ill-nourished subjects require modifications in their diet as compared with people who are stout, while those who take plenty of exercise can take food forbidden to the indolent.

Individuals who especially benefit by a reduction of diet, both as regards quantity and quality, are those overfed people who are past middle life.

THE TREATMENT OF PERICARDIAL EFFUSION.

Effusions into the pericardium, either serous or purulent, are not commonly met with, but when they do occur they may produce so much pressure upon and interference with the action of the heart as to gravely endanger the patient's life. A number of clinicians have at various times published researches, both experimental and clinical, to determine the most reliable physical signs which will enable us to make a diagnosis of the presence of fluid in the pericardial sac. Without doubt the most important of these physical signs is the muffling of the heart sounds and the extension of dulness downward and to the right and to the left. It has also been found that an aspirating needle inserted close to the sternum in the fifth interspace on the right side, or close to the sternum in the fifth interspace on the left side, will usually enter the pericardial sac when it is distended with fluid, and therefore it has been suggested that puncture and aspiration should be carried out in these cases whenever the physician has determined that effusion is present.

Those physicians who have had the greatest experience seem to be in accord to the effect that a positive diagnosis of pericardial effusion is by no means as easy as many of the text-books would have us believe, and this opinion as to the difficulty of its diagnosis seems to increase with accumulating experience.

At a recent meeting of the College of Physicians of Philadelphia the whole question of pericardial effusion, pyopericardium and heart wounds was thoroughly discussed in a series of papers devoted to these subjects. In connection with the diagnosis of pericardial effusion it was commonly agreed that a mere increase in the area of precordial dulness was by no means a valuable sign in indicating the presence of fluid in the pericardium, since in some instances great cardiac dilatation and displacement of the heart by adhesions might give results almost identical with the condition under discussion. It is also evident that in many cases it is impossible before operation to determine whether the effusion is serous or purulent, and therefore the method by which it should be removed may be perhaps in doubt. If it be serous, the mere character of the effusion in no way contraindicates its removal by aspiration, but if it be purulent the old rule that wherever there is pus there must be an incision holds true, since no purulent sac can be adequately drained by the aspirating needle. In view of this difficulty in diagnosis, and in view of the uncertainties which surround the diagnosis of pericardial effusion from cardiac dilatation, it is probably best in most, if not all, cases to remove the fluid, not by aspiration but by an incision, since it has been proved that this method, under proper antiseptic precautions, is no more dangerous than is the use of the aspirating needle, and if the effusion proves to be purulent, means can be taken by which the sac can not only be relieved of its fluid but continuously drained. In all probability, the best point for the incision is the fourth or fifth interspace close to the left edge of the sternum.

In connection with the subject of wounds of the heart our readers may remember that we have pointed out in these columns in an earlier number the fact that these wounds were by no means as dangerous as is commonly supposed. There are now a large number of cases on record in which wounds of the heart have been survived for long periods of time, and the last few years have been noteworthy in that fully sixty operations have been done with the object of repairing wounds in the cardiac muscle, and of these a fairly large proportion have been crowned with success.

As a matter of fact a stab wound of the heart, unless perchance it wounds a coronary artery or punctures the so-called coördinating center of Kronecker and Schmey, is much less apt to cause the death of the patient than if one of the large blood-vessels of the thorax is wounded, since the arrangement of the muscular fibers of the heart and the contractions of this viscus aid in the forma-

tion of a clot which may successfully close the opening in the cardiac wall. That this occurs has been proved by a number of autopsies in human beings, and the writer of this editorial reported in the *Medical and Surgical Reporter* in 1889 a series of experiments upon the lower animals in which he proved that nature not infrequently is successful in closing an opening in this manner. As a matter of fact the cause of death in most wounds of the heart is not the damage to the heart itself, nor the loss of blood which ensues, but the accumulation of clotted blood in the pericardial sac to such an extent that the action of the heart is interfered with, and finally, as the pressure becomes very great, diastole is impossible. If the wound in the pericardium is large enough to permit the blood to flow freely into the thorax, then death may ensue from hemorrhage combined with shock. There are three lessons to be drawn from these facts. One is that in suspected stab wounds of the heart the surgeon should not be too quick to determine upon operation, since nature may plug the opening; secondly, that if the symptoms of cardiac distress are urgent, he should get into the chest with the greatest possible speed with the object of opening the pericardium, turning out the effused blood before its pressure can stop the heart, and then by stitching the wound prevent further hemorrhage; and thirdly, that whatever may be the decision as to the method by which a pericardial effusion is to be removed, no great danger exists from puncture of the heart with the instrument which is employed. If an incision is resorted to, and is carefully made, it is hard to see how the heart can be seriously damaged, unless the pericardial sac has been obliterated by an inflammatory process, and the surgeon's dissection is too hurried. That the mere puncture of a cardiac cavity with an aspirating needle attached to a vacuum bottle is not as serious as would be supposed at first sight is proved not only by the numerous instances in which the heart cavities have been punctured without causing death, but also by the experience of the writer, who has seen an instance in which the heart was not only punctured by the aspirating needle, but pure blood was drawn from its cavities on two occasions by the aspirator in the endeavor to draw off a pericardial effusion which was supposed to exist. The real reason, therefore, for incision rather than puncture lies in our ability to drain the pericardial sac satisfactorily rather than any fear of certain death if the heart is wounded by the needle required in operation.

LIGATURE OF THE INFERIOR VENA CAVA.

It occasionally happens, especially during operation for the removal of postperitoneal malignant growths, that the vena cava is wounded. The quickest and easiest way to check the resulant hemorrhage is by ligation of the vein, and this, when practiced below the point of origin of the renal veins, seems a safe procedure, not only from the standpoint of immediately checking the hemorrhage, but also from that of causing no remote ill effects. Thus Hartmann, in the early part of this year, whilst doing transperitoneal right nephrectomy, tore the vena cava just beneath the renal hilum. A ligature was placed about the vein above and below the point of tear. The patient recovered. Hartmann remarks, however, that had the wound of the vein been high enough to involve the point of origin of the renal vein, such a procedure as ligation could not be seriously considered, since it would inevitably suppress the circulation of the remaining kidney.

Tuffier in writing upon the same subject notes that complete ligation, with a successful issue, may be possible even when the vein is closed at or above the points of entrance of the renal veins, observing experimentally no ill effects upon the kidneys, since there is a fairly satisfactory collateral circulation (*Bull. Soc. Chirurgie Paris,* séance, 13 janvier, 1904, p. 57).

For the purpose of settling this matter, as far as it may be done by laboratory research, Gosset and Lecène (*La Tribune Médicale,* April 2, 1904), holding that the venous system of the dog is extremely like that of man, conducted a number of experiments which show that ligaturing the vena cava below the entrance of the renal veins causes no inconvenience of any kind, not even edema of the legs. If, however, the ligature be placed above the renal veins, grave lesions will always result, the venous anastomosis not

being sufficient for the return circulation. Such ligature is always fatal, as would necessarily be a double ligation, one thread being placed above and the other below the entrance of the renal veins. Münck, Frerichs, Alessandri, and others have shown that a sudden closure of the renal vein causes arrest of the renal secretion, with serious histological lesions in the vast majority of cases.

There can be no question or doubt as to the adequacy of the venous anastomosis to reëstablish thorough circulation when the obliteration of the renal vein is gradually accomplished. All the recoveries after ligation of the vena cava in man have occurred when the ligature was placed below the entrance of the renal veins. Hence it follows that if in the course of a surgical operation the vena cava is injured in such a position that its stoppage by ligature implies the application of this thread above the renal veins, such a method of checking bleeding must be looked upon as insuring death almost as certainly, though somewhat more slowly, than would a violent hemorrhage if unchecked. The procedure under such circumstances should be to close the rent by suture, or perhaps by suture reenforced by adhesive plaster, by the ingenious method proposed by Brewer.

MULTIPLE CHANCRES.

Since the majority of text-books put as one of the cardinal symptoms of syphilitic chancre the fact that it is a single sore, and since this characteristic is usually expected by those who, occupied with a general practice, see comparatively few cases of syphilis, it is important that it should be generally known that the true syphilitic chancre is multiple in about 25 per cent of all cases. Thus, Gaillard, Lafosse, and Papegaey (*La Tribune Médicale,* April 2, 1904) have collected the cases from the Hospital Ricord, and note that in 12,069, 3065 were multiple. These statistics were taken from the service of four men, and the percentage of each was practically the same, excepting the service of Mauriac with 22.84 per cent.

Fournier in his comments on Ricord's writings finds that over 25 per cent of chancres are multiple. Jullien finds the percentage even higher—*i.e.,* 33.26 per cent—whilst Fournier in his treatise on syphilis finds that of 9754 cases, 1744 were multiple, which is a percentage of about 18.

These figures are important as serving to show that in one of four or at least five cases the sign upon which, perhaps, most importance is placed, in making a diagnosis, will be absent.

Those who believe that the treatment of syphilis should not begin until the entire system is permeated with the poison, as expressed in the enlarged lymphatics, deteriorated blood, and eruptions upon the skin and mucous surfaces, may place but little value on this peculiarity of the affection; but those who are taught that treatment should begin as soon as the diagnosis is reasonably certain will understand the importance of recognizing this multiplicity of chancre lest otherwise they be misled and their patients lose valuable time.

Reports on Therapeutic Progress

THE TREATMENT OF THE MORPHINE HABIT BY HYOSCINE.

We have so often published articles dealing with this plan of treatment that an essay by BUCHANAN in the *American Journal of Insanity* for April, 1904, is of additional interest. He believes that in the administration of hyoscine for morphinism the dose should be very small to begin with, say 1-200 gradually increased to 1-100 of a grain, to guard against idiosyncrasies. The first effect is to cause the patient to sleep, but after several doses have been given he becomes wakeful and restless, and in about twelve hours delirium will set in.

As a rule the delirium is mild, and the patient will talk rationally, but sees bugs and picks at the bedclothing, sometimes strips himself to find the bug, or something he has lost. The mind clears up in a few hours after the drug is discontinued, and no bad after-effects from its use occur.

The following outline of treatment is usually observed, but sometimes the condition of the patient necessitates some changes:

If possible, the patient should be kept under observation for a few days, and the amount of morphine and cocaine is reduced to that which will keep him comfortable, but this is not necessary. The night before beginning the hyoscine, 6 to 8 grains of calomel, in combination with some vegetable cathartic, is given, and this is followed by a saline the next morning. The usual morning dose is given, but when the patient calls for morphine in the afternoon, hyoscine is given instead, and from this time for thirty-six to forty hours the patient must be kept under the influence of the drug, 1-200 to 1-100 grain being given every two or three hours, according to the condition of the patient, but never enough to completely stupefy him. The patient should be kept in bed, and a nurse kept with him day and night, because he will not stay in bed, and some patients undress or otherwise expose themselves.

If the patient is robust and bears treatment well, nothing but hyoscine is given, but if he be weak, or if the pulse becomes weak or irregular, strychnine is given, and if necessary a little morphine or codeine is added. The pulse is usually lowered in rate, and as a rule is of good volume, but occasionally it intermits, or becomes weak; in such cases strychnine is indicated, and the heart's action will become normal after the hyoscine is omitted. The author has never seen any trouble in respiration, even in asthmatics. Rarely has there been diarrhea, nausea, or vomiting, but occasionally there has been some trouble when the condition of the patient was not good before beginning the treatment. There is not much appetite, but water and milk will be taken if given by the nurse at regular intervals, and this is important, otherwise the patient will come out of the treatment feeling prostrated. Some become nervous and do not sleep at all during the first few nights, and may require a hypnotic. For this purpose trional or chloral hydrate with bromide of soda may be used with good results. If the patient is put on large doses of bromide of soda for a few days preceding the treatment, or if hyoscine is given in larger doses at shorter intervals, there will be less nervousness, and he will pass the time in a deep sleep. The author had but one patient to sleep through the treatment, and in this instance the hyoscine was given while he was under the influence of a large dose of morphine.

The after-treatment is the same as in other methods—tonics, nourishing diet, and rest. Hyoscine will no more cure the morphine habit than will the gradual withdrawal method, or any other method now in vogue. No claim is made for it as a specific for morphinism, but it has been well said that "in hyoscine hydrobromide in morphine habituation we possess a safe, certain, and painless method of treatment," and this remedy merits the attention of those interested in this work. It has been said to be inhuman and dangerous, because it produces delirium, and sometimes the administration of stimulants, such as strychnine, atropine, and nitroglycerin, is indicated. The author has seen the necessity for stimulation while treating patients by gradually reducing the dose, and has noted maniacal manifestations with hallucinations of sight and hearing.

Just how hyoscine acts and takes the place of morphine we do not know, but we know it does, and that too without pain or shock. It does not matter how much morphine alone, or in combination with cocaine, the patient has been accustomed to take; he does not miss the morphine after he is once thoroughly under the influence of hyoscine, nor does he crave it after the treatment is finished. Patients have said they felt the need of a stimulant on account of weakness, but did not say they wanted morphine.

THE VALUE OF CERTAIN DRUGS IN MEDICINAL TREATMENT OF DISEASES IN CHILDREN.

An article by TRESILIAN bearing this title is contributed to the *Medical Press* of May 18, 1904. He reminds us that Moxon's dictum that "a doctor without physic is like a priest without a creed" is especially applicable to children. A hesitating and casual doctor, relying on expectant treatment only for sick children, will find that unbelieving mothers will frequently change their faith. Moreover, it is in children that one gets the quickest and most encouraging results from treatment, as they respond readily to properly directed therapeutic measures.

The drug list available for children is

a small one in comparison with that of adults.

Alcohol and cod-liver oil are more properly foods than drugs. Alcohol is most valuable in the treatment of pneumonia, zymotic diarrhea, and severe chorea. It must not be pushed too far, as it generally is by parents, who do not recognize the symptoms of an overdose; it must be given in regular doses and stopped as soon as possible.

Antimony is the most valuable of all drugs in the treatment of acute bronchial and pulmonary disease, acute lobar pneumonia, acute laryngitis and bronchitis, and early stages of catarrhal pneumonia, and children bear it well. It may be combined with aconite or acetate of ammonia. It is also useful in acute eczema. [We greatly prefer aconite.—ED.]

Arsenic: The method of curing chorea in a week with large doses of Fowler's solution is to be condemned. Smaller doses, spread over a larger interval and gradually increased, are preferable. Arsenic is also useful in asthma and the lymphadenomatous and leukemic conditions of children.

Belladonna is very valuable in acute catarrhal or bronchopneumonia, its effects in stopping the edematous secretion being sometimes very striking. It is also useful sometimes in pure neurotic enuresis, and it may be pushed and combined with quinine, strychnine, or bromides. In whooping-cough as well as in enuresis it, however, frequently fails. It is valuable as an external application in appendicitis and in the non-tuberculous forms of peritonitis.

Mercury: The days of universal use of mercury with chalk and calomel are declining. Jenner's dictum, "When you see a sick child, don't think only of gray powder," was a wise one. Small doses of mercury with chalk are very useful in the treatment of digestive troubles of bottle-fed infants. The inunction of mercury is most valuable for producing rapid effects in the treatment of congenital syphilis, especially interstitial keratitis and labyrinthine disease, where the mischief must be checked as soon as possible. In these conditions the action of gray powder and the solution of the perchloride are much too slow. Mercurial inunction is also useful in tuberculous peritonitis. The external and internal administration of mercury in combination is sometimes the best in non-tuberculous forms of meningitis, which are generally posterior and basic, but it frequently fails to produce any effect whatever.

Salicylates do not exert the same depressing effects in children that they do in adults, either upon the nervous or circulatory systems, and they do not affect the labyrinth in the same way. They have a tendency, however, to cause hematuria. Not only in acute rheumatism and acute erythematous symptoms, but in chronic mucous catarrh of the intestines, in papular urticaria, in bladder affections, such as cystitis and uricacidemia, in headaches, in the rheumatic forms of tonsillitis, in acute summer diarrhea, and, combined with belladonna, in appendicitis, they sometimes give most striking results. The salicylate of bismuth is a most valuable drug for children; it does not cause hematuria, and is most useful in diarrhea and colic.

Antipyrin and phenacetine are useful in acute pain, such as earache, in painful dentition, night terrors, and laryngismus.

Opium: Opium in small doses in the form of Dover's powder can be used with safety in colic, appendicitis, intussusception, and acute diarrhea.

Chloral is the best hypnotic for children, and is useful in tetany, convulsions, and allied conditions.

Purgatives: For young infants those which will be found of most service are manna, small glycerin suppositories or injections, the stick of soap dipped in glycerin; and for older children pilules of aloin and belladonna, cascara bonbons, Rubinat and Franz Joseph waters, and so on.

PREVENTION AND TREATMENT OF BLACKWATER FEVER.

A. PLEHN (*Arch. f. Schiffs- und Trop. Hyg.*, December, 1903) deals with the prevention and treatment of blackwater fever. The predisposing cause is the anemia and functional exhaustion of the blood-forming organs due to long-continued malarial infection, and in a large majority of cases the exciting cause is the administration of quinine in an acute attack of malaria. The ideal treatment is clearly the prevention of malaria, but until that is accomplished the treatment of

blackwater fever remains a matter of importance. The disease is rare during the first six months' residence in a dangerous neighborhood, and if it occurs within this time it usually follows a series of neglected malarial attacks, of which the last has been vigorously treated with quinine. In most cases long-continued latent malaria, without an acute attack, is enough to predispose to blackwater fever, for this disease often accompanies the first attack. Thus in a case here described the patient took quinine prophylactically during a long stay in an infective area, and never suffered from acute malaria until he ceased to take quinine immediately after his return home. He was then attacked by malaria complicated by blackwater fever.

The danger of contracting the disease probably increases with the length of exposure to infection, and although it is for practical purposes impossible to limit residence in the tropics to six months, yet any shortening of length of stay is so far of benefit. A short holiday in the hills appears often to determine an outbreak of malaria, with or without hemoglobinuria. To destroy the predisposition time must be given not only for the destruction of the malarial parasite, but also for the functional restoration of the blood-forming organs. Even the customary six months' furlough cannot be adequate, for while, in cases given, new arrivals in the country were safe from blackwater fever for an average of 27 months, the period of immunity was only 5.2 months in those returned from furlough.

While hygienic measures and improvement in nursing have materially lessened the number of cases of the fever, these measures alone are not sufficient, and the most important treatment is the prophylactic administration of half-gramme doses of quinine every five days. The effect of the last method increases with time, until old residents, as long as they take the customary dose, practically never suffer. Larger doses, a gramme or a gramme and a half, are often recommended, but they have not been more effectual than the smaller doses in preventing malaria, while they may naturally be supposed to increase the tendency to blackwater fever. That this is not the effect of the smaller doses is shown by statistics. In 1897-99, among officials not taking quinine, one case of blackwater fever occurred, in the author's experience, for every 18.5 months of residence, as opposed to one for 74 months in those taking quinine. Ten per cent of the cases ended fatally where quinine had not, and none where it had, been taken. It is essential that the quinine should be taken regularly, for if the dose be once omitted an attack of malaria may follow, and the larger amounts of quinine then needed bring a certain danger of hemoglobinuria. An obvious precaution to take, where the onset of blackwater fever seems probable, is to give small doses of quinine in acute malaria. Plehn tried this method with unsatisfactory results. Where the usual 1 or 1½ grammes of quinine were given the symptoms of blackwater fever, if they appeared, subsided in from one to forty-eight hours, the temperature fell, and the whole attack was over. Where small doses were given hemoglobinuria still appeared, and continued after the fall of temperature, or after a temporary improvement the malarial fever returned. These cases then became difficult to treat, for large doses of quinine would certainly give rise again to hemoglobinuria, especially dangerous when the patient had become weak and anemic. So great is the danger that Plehn sent home three such cases rather than administer quinine: of these, one recovered after expectant treatment for several months; one had an attack of blackwater fever on the administration of quinine, when he reached home; and the third died from an attack which followed the administration of quinine on board the vessel. The rule to be followed is therefore to give ordinary doses to all patients in acute attacks of malaria unless they have suffered during the preceding year from blackwater fever, and even then never to give less than ½ gramme. The prophylactic use of quinine is begun again as soon as the hemoglobinuria and the albuminuria disappear, but no absolute rule as to the dose can be given. Happily the greater the tendency to hemoglobinuria the less is the dose of quinine needed to protect from malaria. Thus one patient with a marked tendency was kept in good health by taking regularly ¼-gramme doses of quinine. No quinine is given while hemoglobinuria is actually present. With hygienic improvements, the lessening of opportunities of reinfec-

tion, and the more general use of quinine prophylactically, blackwater fever may be expected to disappear even more rapidly than malaria.—*British Medical Journal,* May 14, 1904.

THE VALUE OF HOT-WATER INJECTIONS AS A SUBSTITUTE FOR NUTRIENT ENEMATA IN THE TREATMENT OF GASTRIC ULCER.

M. PASTEUR, of London, writes on this subject in the *Lancet* of May 21, 1904. For the last eighteen months he has treated all cases of gastric ulcer requiring rectal feeding by enemata of plain water at the temperature of the body, with results sufficiently uniform and satisfactory to be worth recording. Without discussing the indications for rectal feeding he compares the results obtained when plain water is used instead of beef tea, milk, eggs, starch, and the many other foodstuffs which are employed in concocting the four- or six-ounce enema which has become consecrated by usage in the treatment of these cases.

It is generally held that the rectum is capable of absorbing (1) peptone; (2) white of egg, especially with salt added; (3) raw beef juice; and (4) starch and sugar, and, to a far less extent, milk proteids and gelatin. It is also common knowledge that patients can be kept alive by this method of alimentation in comparative comfort for several weeks. But the comfort is only comparative. Relief from gastric pain and vomiting is usually prompt, but very soon other symptoms, attributable mainly to the rectal feeding, make their appearance. Of these the first to arise and the most important is thirst. Nor is this surprising seeing that the total amount of fluid given per rectum in the twenty-four hours varies from 16 to 40 ounces at the outside. It is usual to relieve thirst by allowing the patient to sip a small quantity of hot water from time to time, or to suck ice, or from half a pint to a pint of warm water is injected into the rectum once or twice in the twenty-four hours. This last method is the best, but it has the drawback of increasing the total number of enemata and thereby the risk of rectal intolerance.

Ice by the mouth should always be avoided. It often fails to quench the thirst, and it is difficult to limit the amount taken. The author has long since given up the use of ice in the treatment of gastric ulcer except in an ice-bag over the epigastrium, suspended from a cradle so as to insure the lightest possible contact, for the relief of pain. Sipping hot water undoubtedly relieves thirst in some cases, but the primary object in the treatment of this condition is, so far as possible, to secure physiological rest for the stomach. This is best achieved by giving nothing whatever by the mouth for the first few days, at all events, and this can only be done by administering a sufficient quantity of water per rectum to prevent thirst from becoming urgent.

Another symptom which occurs in the course of a few days, especially in all cases where the enemata contain beef tea, is an unpleasant taste of beef tea in the mouth, not infrequently associated with a feeling of nausea. This symptom is sometimes very distressing.

By substituting ten-ounce enemata of plain water at a temperature of 100° F. for the smaller nutrient enema at present in general use it is possible to prevent thirst altogether in the great majority of cases, and to do away entirely with the unpleasant taste in the mouth. In the author's experience since adopting the plain-water enemata the patients have been altogether more comfortable and much easier to manage than under the old régime of small nutrient enemata, and he is quite satisfied that the general condition of the patients is at least as good, if not better, and that recovery takes place as quickly. Since he first adopted this treatment, in November, 1902, he has not had occasion to order a patient an enema, and has met with no untoward symptoms in any of his cases.

It is a good plan to begin with a five- or six-ounce enema, increasing the bulk each time by one ounce until ten ounces are easily retained, and beyond this the author has not found it necessary to go. The enemata are given every four or six hours according to circumstances. In most cases it is possible to supplement the enemata by giving small quantities of peptonized milk by the mouth before the end of a week, but in several instances his patients have had nothing whatever by the mouth for ten days or a fortnight, and in

one or two cases for nearly three weeks, without making any complaint or giving any indication that they were any the worse for their prolonged abstinence. To sum up, the method here advocated gives results at least as good as the ordinary nutrient enemata. It is far simpler to carry out, it is decidedly more bearable for the patient, and incidentally it does away with the unpleasant and offensive daily washout.

The results obtained with enemata of plain water suggest some interesting reflections on the value of the foodstuffs of the ordinary nutrient enema and the absorptive power of the rectum.

A SUGGESTION FOR THE TREATMENT OF PUERPERAL CONVULSIONS BY SPINAL SUBARACHNOID PUNCTURE.

This seemingly heroic plan of treatment is suggested by HELME in the *British Medical Journal* of May 14, 1904. It is quite true as he states that up to the present time we have been dependent chiefly upon drugs. It has lately been suggested that saline injections may be of use by washing out minute capillary thrombi—an unsatisfactory theory. Venesection, too, has been thought to influence the fits by reducing arterial tension; but it is chiefly upon drugs that we depend. The author confesses to employing drugs, especially morphine, with a feeling of anxious doubt. We have yet no rational basis for their use; we are acting altogether in the dark, and are introducing into the body, once and for all, substances which, whilst they may do good, offer for all we know an equal chance of doing harm. Most of the drugs are cardiac depressants, and their actions require to be carefully watched. Morphine, if given in sufficiently large amount, while certainly paralyzing the nerve centers, with equal certainty interferes with and checks metabolism and arrests the excretions—the interference with the latter being the antithesis of what we want.

To illustrate the difficulty of the present position it is only necessary to refer to the fact that while one school recommends morphine to control the fits and inhibit metabolism, another would exhibit thyroid extract because it enhances tissue change. If it could be shown, on the one hand, that the toxemia is not due to the accumulation of effete materials usually present in the body, which are now in excess and capable of being eliminated by the natural channels, if these could be got to work, and on the other hand that the toxemia is due to the presence of some new toxin entirely peculiar to the present state—for example, a toxin formed during the process of dissolution of placental cells (syncytiolysin or syncytiotoxin)—and that this toxin chiefly acts as a poison to the nervous centers, then, until the discovery of a specific antitoxin, there might be ground to encourage us to push the administration of morphine, even though it blocked the excretions. Recent experimental researches have been conducted in this direction.

It has been shown by Schmorl and others that during pregnancy fragments of villi or syncytial cells escape into the maternal blood-stream, and upon this fact has been built the following theory: These foreign cells act as a poison to the maternal system; they give off a toxin (cytotoxin), for the neutralization of which an antitoxin (cytolysin) which has the power of destroying these cells is produced by the maternal tissues. Veit suggested that if this antitoxin, which he named syncytiolysin, is formed in insufficient quantity, the placental cells are not destroyed and act as the direct cause of the eclampsia. Ascoli, as the result of experiments, concluded that the convulsions were due to overproduction of this syncytiolysin, whilst Weichardt propounds the theory that in the dissolution of the placental cells by the maternal antitoxin (syncytiolysin) a new toxin is set free, which, if not neutralized, will give rise to eclampsia, and this he calls syncytiotoxin. His conclusions are the result of experiments upon rabbits and guinea-pigs, in which he has inducted all the phenomena of eclampsia.

Recently these experiments have been repeated by Wormser, of Basle, who has failed to confirm the results obtained by Weichardt. Unfortunately, then, this interesting and promising theory remains a theory; we have no substantial evidence of the existence of this specific toxin, and our hopes of a specific antitoxin are unrealized. We must return, therefore, to our present means of controlling the con-

vulsions, for which we are chiefly dependent upon drugs.

It would be of inestimable value if we had some means whereby we could control the fits without introducing into the system new substances or drugs, which may do harm—some means to control the fits with certainty, averting, as it were, the immediate menace of death, and allowing time to bring the pregnancy to an end and to get the excretory powers to work.

If the author's view that the convulsions and stupor are dependent upon an increased intracranial pressure be correct, we have a most satisfactory and certain means of obtaining immediate relief. In 1872 Quincke noted the free communication of the subarachnoid spaces of the brain and spinal cord, and again in 1891 he called attention to this fact and to the possibility of tapping the spinal cord in the lumbar region. Since that time many cases have been recorded, chiefly of meningitis in children, but also some cases of persistent headache and coma in lead poisoning and chronic Bright's disease, in which the method has been employed and relief has been obtained.

The method of operating employed by the author upon his cases of puerperal eclampsia was as follows: The patient was placed upon her side, and the trunk flexed as far as possible; the skin of the lumbar spinal region was washed with ethereal soap and water, and then with perchloride of mercury solution (1 in 2000). The highest points of the iliac crests being determined, an imaginary transverse line was drawn between these points; the left index-finger was placed upon the point where this imaginary line crossed the spine, this point coinciding with the tip of the spinous process of one of the lumbar vertebræ. A hollow needle, three and a half inches long, held in the right hand, was made to pierce the skin half an inch to the right of the point held by the operator's left index-finger, and was then pushed onward, being directed slightly upward and toward the middle line, so as to pass beneath the lower edge of the vertebral lamina, and so enter the subarachnoid space.

The importance of the subject, the peculiarly distressing nature of the occurrence, the absence of definite knowledge, and the feeling of uncertainty and semi-hopelessness in our present treatment, together with the hope that this suggested method may receive extended trial and prove of value, are the objects of the author in bringing the matter forward at this time.

THE TREATMENT OF BALDNESS.

In *Treatment* for May, 1904, MARSHALL gives the following advice as to this condition:

The general treatment of seborrhea includes sulphur, iodine, and arsenic. Locally, seborrhea may be much improved, but according to Saboraud, not actually cured. In order to eradicate it, it would be necessary to expel all the bacillary colonies in the skin. Saboraud places in order of merit for local application, sulphur, tar, and mercury. Drugs such as salicylic, tartaric, and acetic acids are useful as mordants to aid penetration. Of the tar preparations he prefers oil of cade. Pyrogallic acid and chrysophanic acid are useful, and the former may be replaced by hydroquinone, which does not stain. Mercury is best applied in the form of cinnabar or yellow oxide. Saboraud does not place much reliance on medicated soaps, because they are washed off too soon for the drug to have much effect.

The following are examples of local applications recommended by Saboraud:

1. *Pityriasis Sicca with Alopecia.*—Wash in the morning with soap and sponge, and apply with brush an alcoholic lotion containing one of the following: Salicylic acid, ½; tartaric acid, 1; perchloride of mercury, 1/10; salol, 4/5; chrysophanic acid, 1/20 per cent. This is followed by:

> Oil of cade, 10 parts;
> Cacao, 10 parts;
> Benzoated lard, 20 parts;
> Sulphide of mercury, 1 part;
> Ichthyol, ½ part.

2. *Seborrhea of Scalp.*—Apply milk of sulphur, *i.e.:*

> Sulphur precip., 10 parts;
> Alcohol, 90-per-cent, 10 parts;
> Aqua destillata, 50 parts;
> Aqua rosæ, 50 parts.

Or,

> Calcium sulphide,
> Sodium bicarbonate,
> Sodium sulphate,
> Potassium sulphate,
> Sodium chloride,
> Tartaric acid, equal parts.
>
> One drachm of this powder to a pint of water.

When the flow of sebum is diminished salicylic acid may be used, which aids the evacuation of the bacillary cocoon. Chrysophanic acid or hydroquinone may also be tried—*e.g.*:

Chrysophanic acid, 30 parts;
Pyrogallic acid, 3 parts;
Salicylic acid, 5 parts;
Sulphur precip., 15 parts;
Alcohol, 90-per-cent, 150 parts.

Or,

Hydroquinone, 1 part;
Salicylic acid, 2 parts;
Sulphur precip., 2 parts;
Resorcin, 2 parts;
Excipient, 30 parts.

Or,

Salicylic acid, 30 parts;
Sulphur precip., 30 parts;
Oil of cade, 15 parts;
Cacao, 15 parts;
Benzoated lard, 10 parts;
Cinnabar, 1 part.

If these are not successful, friction with the following may be tried. Massage of the scalp is also useful.

Alcohol, 90-per-cent, 150 parts;
Coal tar, 50 parts;
Ether, 50 parts;
Aqua destillata, 50 parts;
Hydrochlorate of pilocarpine, 1 part;
Perchloride of mercury, 3/10 part;
Salicylic acid, 3/10 part.

The treatment of seborrhea capitis is tedious, and the affection often recurs; but as long as the hair follicles are not sclerosed, a new growth of hair may result.

METASTATIC GOUT.

Sir DYCE DUCKWORTH publishes a clinical lecture on this subject in the *Clinical Journal* of May 18, 1904. When speaking of the wandering and diffuse pains of the patient he says:

If you have a suspicion of the gouty nature of any of these obscure pains, if you can learn that the patient has suffered at some time from gout in the joints, your business is to try and bring the gout out in a frank form into some joint. The favorite joints for gouty manifestations are the joints of the feet. And so what it is prudent to do in these cases is to administer an aperient and to put the feet into the hottest water that the patient can bear. A hot mustard foot-bath will often bring out gout which is larval or lurking, and make it manifest itself in such a spot as can be readily treated. It has been advised that you should sometimes give a little light or sour wine to some of these patients to bring out the gout. The author, however, does not recommend the adoption of this practice. Another plan is to put sinapisms round the feet for a short time—say twenty minutes or half an hour. When the gout alights in the joints, you will find that the alarming symptoms in the brain or viscera will be much diminished or entirely disappear. Having recognized the gouty character of the case, you know what to do. The patient should be given a proper diet, and an appropriate mode of life should be mapped out for him. You will be fortunate if you get the average patient to carry out all that it is proper for him to do. Some of the patients are good and obedient, but others are very wilful and disobedient. One reason why people resent being called gouty is that it is a reflection upon their temperance or upon their self-control. A man does not like to be told he is indulgent. But gout is not always a result of personal intemperance or self-indulgence; it may be inherited from ancestors who have committed these faults. Certainly gout visits those who are themselves perfectly temperate.

The most successful treatment will depend upon your recognition of the nature and idiosyncrasy of the individual. No two cases are alike; the personal factor has always to be considered. And so there is no one diet for all gouty persons, there is no particular wine for them all, there is no special watering-place for all to be sent to; each case must be judged according to its own requirements. Some people are robust and strong, and require one particular line of treatment, while others, who are less healthy, require another. The main indications in the matter of medicines in most of these cases are the use of alkalies, such as bicarbonate of potash, citrate of lithia, and, if there is much pain, colchicum is of use. As soon as the pain is gone you should dispense with the colchicum. And then, one of the most useful drugs is quinine and iodide of potassium together. That generally completes the cure of these cases. The surest means of preventing a recurrence of gouty attacks is to keep the patient in the best possible condition, and to raise his general level of health. If he gets influenza, or some other illness which de-

presses him below the ordinary level, he will probably have another attack of gout. Put in another way, he should endeavor to live above his gout. But with the best care in the world gout is apt to recur. It has been said, "Once gouty, always gouty," so that the proclivity or tendency is always present. A man who has inherited or acquired gout is not the same as the man who has not got it; his whole mode of nutrition is different from that of the ordinary healthy man. He cannot dispose of his food in the same way that the ordinary man can. He generates his own poisons. Gout is an autotoxemia; whereas rheumatism, which many people consider to be the same thing, or at any rate a near relation, is an infection which comes from the outside, just as do smallpox, measles, or other diseases. Those are the main distinctions between the two conditions.

ON THE INDUCTION OF PREMATURE LABOR.

In the course of a lecture on this subject published in the *Clinical Journal* of May 11, 1904, HERMAN says that in a case of contracted pelvis in which it is certain that the patient cannot have a child born of average size and weight, and in which the child can only be born at full term on condition that it is a small one, the alternatives lie between the repetition in pregnancy after pregnancy of premature delivery and the performance of Cæsarian section. With Cæsarian section can be combined the sterilization of the patient, or if that is not done the patient can be told that the risk of subsequent Cæsarian sections will be less than that of the first, because often after Cæsarian section the uterus is found adherent to the anterior abdominal wall, and in that case some of the dangers of Cæsarian section are done away with. In the author's opinion that is the alternative which will have in the future to be presented to the patients whose pelves are too small to allow them to have a strong and well developed child. The great reduction in the risk of this operation is one of the most remarkable steps in the progress of surgery. Cæsarian section is an operation which ought to have hardly any mortality. We know how the mortality from ovariotomy has been reduced, and in ovariotomy there are necessarily dangers which do not come into Cæsarian section. The surgeon who opens the abdomen for the purpose of removing a tumor never knows what he may meet with. You cannot tell what is inside a box until you open the lid. But in the case of Cæsarian section it is not so; you have to deal with healthy parts; you can tell beforehand where everything is; it is the simplest and easiest operation in abdominal surgery, and one which should have hardly any mortality. In cases in which premature labor would have to be induced time after time Cæsarian section is the best alternative to offer. Still, for a long time to come there will be cases in circumstances unfavorable to the successful performance of Cæsarian section, and in which, therefore, it may be safer to allow the patient to have the labor induced, so that the child can be born before it has got so big as to cause difficulty and danger in delivery.

There is no greater risk to the mother in premature labor than in labor at full term. Before the introduction of antiseptics there was greater risk, because it meant more manipulation, and therefore risk of contamination, and at a time when all manipulations brought risk of septic infection that was a serious objection. But when we use antiseptics the manipulations which are required in the induction of premature labor ought not to bring with them any such risk. We ought to be able to tell the patient that a premature labor is as safe as one at full term. There is a curious superstition in the minds of some of the public, namely, that a child's chances of survival are greater if it is born at the seventh month than if it is born at the eighth month. Of course the fact is the other way round, and the idea is a pure delusion.

The great objection to bringing about premature labor is that the child is born puny and small, and for that reason requires greater attention to rear it than a child born at full term. In rearing a child born prematurely the great point consists in keeping it warm, because the child born before due time has not the power of generating as much heat as it requires. It is not sufficient to wrap it up warmly, it is not enough to prevent the heat of its body escaping readily, but additional heat must be communicated to it from without. The

earlier the pregnancy is terminated the greater is the need for communication of warmth to the child. Therefore in cases of premature birth it is well to get the parents to provide an incubator, for with that the child can not only be prevented from losing its heat, but it can have heat imparted to it from without. If the child survives the first few weeks, it will thrive.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC.

In the *Medical News* of May 28, 1904, ERDMANN gives quite an exhaustive résumé of the use of this drug. In closing his paper he gives a few cautions as to the consideration of suggested contraindications and a recapitulation of the course of the narcosis.

The ethyl chloride must be chemically pure. The mask should fit the face snugly. As little as possible should be given—half a drachm is a good initial mass dose. Mauretta gave up to three and four drachms without ill effect, but the general opinion is against such practice. A graduated container must be employed, else the dosage is uncertain. Other rules every anesthetist knows: to watch the eyes, respiration, and pulse; to insist upon quiet in and about the anesthetizing room; and to avoid an open flame.

Only two contraindications have been suggested, namely, if the laryngeal aperture is abnormally small, lest it be aggravated to a stenosis by an irritating vapor, and if any kidney disease is present. But Girard alone suggests this danger. It is not commonly held that the kidney suffers any harm.

Ethyl chloride is a safe, pleasant, rapid, systemic anesthetic agent. The preanesthetic, or short analgesic, stage continues for only a fraction of a minute, and is followed by a condition characterized by some tonic contractures, accelerated respiration, and usually a moderate degree of mydriasis; this is called the cataleptic stage by some, the stage of contracture or the stage of analgesia by others, and is suitable for short operations. After two to five cubic centimeters have been inhaled, or more in the case of large adults, usually after fifteen to sixty seconds, or sooner in children, the third stage, that of profound anesthesia, supervenes. The muscles are now relaxed, the breathing is deep and rhythmical, perhaps snoring, usually the pupil continues to be somewhat dilated, and the conjunctival reflex is abolished. In some instances the patient passes at once into the third stage, sometimes it takes five minutes; once in a while the third stage is not reached at all. If the ethyl chloride is to be continued small doses, say one cubic centimeter, are given about every minute; or if a mixed anesthesia is to be used the change can readily be made if the modified Allis inhaler is employed. The patient is awake within a few minutes after the mask is removed. After a short anesthesia he is seldom nauseated and rarely complains of headache. He may be a trifle upset by his strange position and surroundings, but he will quickly recover himself. If it was a long operation and he is taken to the ward he will soon be as natural as the other patients. If it was a short operation, say in the office, he will not be delayed long from going about his business.

THE THERAPEUTIC VALUE OF ASEPTIC ERGOT IN ANESTHESIA AND SHOCK.

In the *American Journal of Obstetrics* for May, 1904, GRAD writes on this topic. He says that aseptic ergot, given hypodermically, does not prevent vomiting following anesthesia, and no such claim can be made for it, but what it does do is this—it mitigates the feeling of nausea, controls the retching, and diminishes the frequency of the acts of vomiting. Freeing the patient from all these baneful sequelæ of anesthesia means that the patient is placed in a state of nerve calmness, which must necessarily react most favorably on the recuperative powers. Were ergot to do no more than this, it would deserve a place in the armamentarium of the surgeon, but its administration accomplishes still more. Next to a hypodermic of morphine, it is the most powerful anodyne. When the pain incident to the operation becomes unbearable, a hypodermic injection of ergot will bring the patient the much desired relief. Ergot does not relieve pain with as much certainty as an injection of morphine, and therefore, in those cases where the ergot does not bring relief and morphine is called for, it will be

found that under these conditions the action of the morphine is much augmented by the ergot, and the anodyne effect of these combined drugs is more pleasing to the patient and more lasting in its effects.

But more than this can be said in favor of ergot in surgery. It not alone brings about a state of nerve calmness, but acts beneficially on shock. Whether this beneficial effect on shock is an indirect one, by removing nausea, retching, and relieving pain, or whether the therapeutic effect is due to having brought about a state of equilibrium in the circulation in the brain and thereby exerting a calming influence directly on the cells of the central nervous system, we cannot tell, but we have reason to believe that the latter is the case. The physiological effect of ergot is to cause contraction of involuntary muscles. By doing this it will bring about equilibrium in the circulation of a part of the seat of congestion. In this congested area or organ the blood-vessels are dilated, the nerve endings are pressed by these vessels, a condition ripe for exudation and inflammation. Ergot brings about a change by contracting the muscle fibers of the arteries, equilibrium in the circulation is thus established, congestion is overcome, exudation prevented, and pain relieved by removing pressure from the nerve endings.

In the laparotomy cases where ergot has been used the author observed that the bowels have been made to move more easily than is usual with these cases. He cannot say that this very desirable condition was due to the ergot administered or merely a coincidence, but so striking has this effect been that he makes mention of it. In one laparotomy case the bowels moved during the second day without any cathartic, and in still another case, a patient given to constipation, the bowels were made to move two days after laparotomy with the aid of a grain of calomel given in four doses. Many laparotomy cases, of course, have bowel movements without the aid of cathartics, but in the majority of cases it takes considerable medication to bring about this result. It is therefore difficult to draw conclusions in this matter, but with due allowance given to all questions on the subject, it seems that the free use of ergot in laparotomy cases enhances bowel movements. And in these cases less difficulty will be experienced in obtaining a movement when cathartics are called for.

Nor can we help being impressed with the therapeutic value of ergot in the shock due to abdominal sections. Shock is a state of depression of all vital functions, but particularly that of the circulation, hence the facial pallor, the cold extremities, the feeble heart action. An excessive irritation of the peripheral nerves brings about changes in the function of the central nervous system, particularly that part which presides over the vasomotor system, the seat of which is in the medulla. Excessive peripheral irritation brings about in the medulla a condition of nerve exhaustion which may gradually merge into a state of paralysis. Ergot exerts its influence in these cases by equalizing the disturbed circulation in the medulla.

CHOREA.

In discussing the general characteristics of this disease CHAPMAN in the *Brooklyn Medical Journal* for May, 1904, reminds us that for the specific medication of chorea many drugs have been advocated, but their value has probably been greatly overestimated. Gowers tested the various drugs advocated as specifics, using each drug separately on a number of cases. No combinations were employed in order that the exact value of each drug might be estimated. The conclusions arrived at were that nearly the entire lot were practically worthless. There seems to be but one drug which has met with much success in the hands of all observers, namely, arsenic. It is generally given in the form of Fowler's solution, beginning with small doses and gradually increasing until the tolerance is reached. It should be well diluted, and given either during meals or shortly after. Some cases tolerate Pearson's or Donovan's solution better than Fowler's solution. It is advocated by some writers to increase the doses of arsenic until its full physiological effects are produced. It is difficult to see the philosophy of such treatment. While it may rapidly reduce the choreic movements, the damage done to the digestive organs is certainly detrimental to the patient's general condition, which is the point that should receive our first attention. It is also advocated to administer

arsenic hypodermically in cases where it it not well borne by the stomach. While on this subject the author cannot speak from personal experience, he feels that such cases are rare, and should they arise the pain and annoyance caused by the hypodermic injections would offset any good done by the arsenic.

The general treatment consists in improving the patient's general condition and correcting coexisting disorders. The digestive organs should be put in as good order as possible. Any source of gastric or intestinal irritation should be removed. The bowels should be regulated so that at least one good movement a day is secured. Purgatives should be avoided if possible, but if the bowels cannot be regulated by the diet and force of habit, an occasional laxative is necessary. Under these circumstances the aromatic fluid extract of cascara is the author's choice.

As before stated, the urine is scanty, with a high specific gravity and loaded with uric acid, phosphates, and urates. An increased elimination on the part of the kidneys is indicated, and is best brought about by encouraging the use of plenty of drinking-water. All medicines should be well diluted, not only to prevent gastric irritation, but to increase the amount of liquids ingested. Medicinal diuretics are seldom necessary, but if indicated small doses of acetate of potash may be dissolved in milk and administered without the patient's knowledge.

The anemia usually present should receive attention. A great difference of opinion exists as to the efficacy of iron, but given in small doses and well diluted it has always been found to act well. Its administration should be carefully watched and care taken not to give more than can be readily absorbed. The preparation of iron is largely a matter of choice. The author prefers the citrate of iron and quinine dissolved in sherry wine, given in small doses, well diluted, during meals. If the digestion be good and the stomach will stand it, the syrup of the iodide of iron with compound syrup of hypophosphates makes an excellent combination.

If the insomnia be mild, it requires no treatment; but if severe and accompanied by much restlessness, it should be overcome, if possible. This is often a difficult problem to solve. Chloral hydrate is well borne by children and may be administered in full doses. Five to ten grains in a cup of hot milk usually produces a good night's sleep. Hyoscine hydrobromate and the other powerful hypnotics advocated by some writers should be withheld from children; also the coal-tar preparations. Coexisting disorders, such as malaria, rheumatism, etc., should receive their appropriate treatment. Quinine and the salicylates are well borne by choreic patients. Any source of reflex irritation, such as adenoids, phimosis, etc., may receive palliative treatment, but surgical procedures should be avoided until the choreic symptoms have subsided.

TREATMENT OF TRACHOMA.

The *Archives of Pediatrics* for May, 1904, contains an editorial article by MORTON in which he gives the following advice:

The treatment of trachoma during acute exacerbation is best conducted by some one of the new silver salts. When the disease is quiescent it may be attacked by local applications or by surgical procedures. Of the local applications the sulphate of copper pencil is considered the best. In about ten thousand cases treated at the Department of Health's Trachoma Hospital it proved to be greatly superior to either bichloride of mercury or formalin. With the two latter it seemed as if such results as were obtained were due solely to the friction employed. The results of treatment by the sulphate of copper crayon, it may be added, are often exceedingly good, particularly in cases presenting a preponderance of large superficial granules. This treatment is, of course, tedious and painful, and cocaine does not seem to alleviate the smarting to any marked degree.

In regard to surgical procedures the author is in favor of simple expression without previous scarification, and judging from the results of about six thousand cases treated by operation, believes that Knapp's roller forceps is the best instrument to employ. When the follicles are superficial Noyes's or Prince's forceps answer the purpose very well, but when deeply seated the stripping action of these instruments necessitates too much traumatism and is not to be compared to the

vertical pressure of the Knapp instrument. Knapp's forceps are somewhat more difficult of manipulation than those of Noyes and Prince, and are not so readily used in the canthi. In the latter situation, however, the follicles are superficial, and the Prince forceps can be used to complete the operation.

The immediate treatment is best conducted by the early removal of the bandage and the use of ice cloths. In the service of the Department of Health the present custom is to remove the bandage at the end of a few hours. The continuance of the bandage for twenty-four hours increases the tenacity of the resulting adhesions. Adhesions should be separated daily with a probe until their tendency to re-form shall have ceased. It must be remembered that it is not always possible to prevent some light permanent agglutinations between the folds of the conjunctiva which have been denuded of their epithelium. If, however, the conjunctiva has not been torn during the operation, a slight adhesion of this kind will do no practical harm.

The result of operative treatment depends largely upon the patience and thoroughness of the operator, and the more thorough he is in removing the granules, the greater is apt to be the subsequent reaction and the more numerous and persistent the adhesions in a difficult case. The point of primary importance, however, is to remove the granules; reaction can be subsequently combated. After reaction has subsided, any follicles remaining are to be treated by sulphate of copper, and this treatment should not be discontinued until conjunctival hypertrophy shall have disappeared.

SOME THERAPEUTIC APPLICATIONS OF CHLORETONE.

In the *Liverpool Medico-Chirurgical Journal* for January, 1904, HUTTON writes of his use of this new drug. The author believes that many practitioners have discovered for themselves, as he did, the great usefulness of this drug, but that the knowledge of its value is not so widespread as to deprive his communication of all interest.

First, then, in the treatment of vomiting of pregnancy. During the past twelve months he has employed chloretone in six such cases. In four of these the nausea and vomiting was at least so far controlled as to become unimportant and no longer distressing to the patient. In the fifth case the pregnancy was complicated by the presence of exophthalmic goitre. There had been two previous pregnancies, each of which, accompanied by very obstinate, severe, and prolonged nausea and vomiting, had ended in miscarriage. In this case the writer does not believe the child would have been carried to the full term had he not had the assistance of chloretone to control the frequent and exhausting vomiting, which occurred at intervals, even until the middle of the ninth month.

In the sixth case chloretone completely failed. Not only was the sickness uninfluenced, but the patient experienced much discomfort on account of giddiness, and a feeling as if, in her own words, "it had gone to her head." This may have been partly due to an unnecessarily large dose, but the author has found an idiosyncrasy in a few persons who are always unpleasantly affected by the drug. At first he employed doses of five grains in cachet or capsule, but latterly has found that three grains is sufficient, or even a tablespoonful of a saturated aqueous solution containing barely four grains to the ounce.

It has been his rule to direct the first two or three doses to be taken at intervals of half an hour or twenty minutes if necessary, and subsequently at longer intervals, according to the sensations of the patient, placing a limit to the total number which might be taken. His experience is that seldom more than three doses are required, and after the first trial one dose is often sufficient on subsequent occasions.

Secondly, he has found chloretone exceedingly useful in the sickness accompanying the menstrual period in many girls. Notably, in the first case when he tried the drug, three sisters out of a family of five daughters were every month each laid up in bed for at least a day with what might be called a bilious attack, accompanied by sickness and retching; and this had gone on for some eight or ten years. After three or four months two of these girls no longer required to take the chloretone at the time of the period, and the sickness ceased to occur. The third sister still (after eighteen months) takes

one dose of five grains each month, and has very little trouble.

Thirdly, in seasickness. Recently in the *Lancet* there have been letters from several correspondents relating to the virtues of chloretone in preventing certain forms of seasickness. In the four cases which have come under the author's observation it has been most successful. For instance, a young woman who had never been in a boat of any kind without being sick, and who made a rough passage to Ceylon with only half an hour's nausea near Gibraltar.

Fourthly, chloretone gives relief of stomach pain, especially when of neurotic origin, exhibited in the same manner (preferably in solution).

He has not tried the effect of chloretone on vomiting due to grave organic conditions, but there also he believes it is useful.

The drug acts, no doubt, by rapidly benumbing sensation in the stomach. It has a pleasant taste, produces an agreeable feeling of warmth, and the slight hypnotic effect produced by 12 or 15 grains frequently aids the process of relief.

In those cases of neurotic origin, and in seasickness especially, the author believes that the effect of the drug is of course enhanced if given with a confident assurance of its efficacy.

As a hypnotic he has not been favorably impressed with chloretone, doses of 15 and 20 grains often failing to give sleep, and causing heaviness or bad taste in the mouth next morning.

INTRASPINAL INJECTION OF LYSOL SOLUTION IN THE TREATMENT OF CEREBROSPINAL MENINGITIS.

The *Medical News* of May 14, 1904, contains an article by MANGES covering this seemingly heroic plan of treatment. He tells us that we are indebted to Seager for the publication of this new method of treatment, the results of which are most encouraging. His experience is based upon his observations in a series of cases of the epidemic form at Lisbon.

This treatment consists in lumbar puncture and the withdrawal by aspiration of varying quantities of cerebrospinal fluid from the spinal canal, frequently amounting to 50 cubic centimeters. "Artificial serum is then injected with the same syringe, the needle being left *in situ*, and the surrounding parts are washed with serum; lastly, a quantity (from 9 to 12 cubic centimeters) of a one-per-cent solution of lysol is injected through the same instrument and the needle withdrawn. The temperature falls immediately, but rises again after one to three days, when the puncture and injections are repeated, and so on until only quite clear and limpid fluid is withdrawn after puncture, when the injection of lysol is stopped. Afterward a few punctures are made to see if the fluid continues clear." Seager calls attention to the painfulness of the treatment, which, however, the writer's own experience in the three cases treated does not corroborate.

Of the 31 cases in Lisbon which were treated with lysol, 13 died—5 from dilatation of the cerebral ventricles, 2 from pulmonary tuberculosis, 1 from edema of the glottis, 1 from purulent pneumonia, and 4 from the disease without complications. The 18 that recovered were completely cured.

The early plan of treatment in this same epidemic was by hot bath and ice-bag to the head. Under this régime 60 per cent died. Then simple lumbar puncture of the spinal canal was tried in 20 cases, in 3 of which the fluid was already purulent.

Of these 20 patients died, and of the 11 who recovered 1 was deaf, 1 had persistent paralysis of the left arm, and 4 had bed-sores. The next 7 cases were treated with puncture, removal of the fluid, and an injection of oxycyanide of mercury. Of these 7 cases 4 died and 3 were cured. The fluid was purulent in 5 of these cases, 4 of which proved fatal.

The number of cases treated by lysol could have been increased had Seager included 20 cases which were under treatment at the time of his report, but inasmuch as the duration of this disease is often long, he did not include those under treatment, although he states that the majority of them were in such good condition that their recovery seemed assured; hence the results of the treatment are even better than 57 per cent of complete recoveries in the 31 cases noted above. The presence of the meningococcus was the only characteristic bacteriological finding in the cases. Of the three cases first

reported the first was a meningococcus infection and the second a virulent streptococcus. While it must remain an open question whether the meningococcus case would have recovered without this treatment, since the sporadic cases in adults not infrequently do so, yet the fact remains that the patient was losing ground steadily in spite of the various treatments, including lumbar punctures, which were employed. After the first injection he seemed to hold his own, while following the second his recovery was rapid and uneventful.

Of the second case the writer speaks with much more assurance, since at the Mount Sinai Hospital death has resulted in every case of cerebrospinal meningitis in which the streptococcus was found in the fluid obtained by lumbar puncture. The condition of the child at the time of the first lysol injection was so desperate that no one who saw the case expected him to survive the night, hence his complete recovery without any after-effects is all the more gratifying. It is to be noted that the washing out of the spinal canal with artificial serum was omitted in all of these patients. The injections were all made without anesthesia, except the first one in the child, which was done under slight chloroform narcosis. No pain was complained of and no unpleasant after-effects were noted.

At the present writing all of the patients are perfectly well.

OLIVE OIL AS A THERAPEUTIC AGENT.

There are few agents in the materia medica to which less space is usually given in the text-books than olive oil, a few lines being considered sufficient to mention that it has nutritive qualities of importance, and that it may be substituted for cod-liver oil. During the last few years, however, observers in Germany and America have drawn attention to the high value of this drug in very varying conditions of disorder in the stomach and intestines. In chronic dysentery excellent results have followed the continued use of olive oil given in large quantities. Starting with a dose of one ounce three times a day, this is gradually increased to four ounces. Very little objection is made to the taste of the oil, and after a short time patients develop a liking for it. The beneficial results obtained are ascribed by some observers to a supposed stimulation of the secretion of bile. In the very different condition of gastric ulcer, Cohnheim has long relied on olive oil as an adjunct in treatment. He believes that it relieves pain, lubricates surfaces of ulcers or fissures, reduces hyperacidity, and acts as an easily digested food. In employing olive oil, one should take precautions to make sure that the oil is pure, as in commerce it is commonly adulterated to a large extent with cottonseed oil, a body whose therapeutic and nutritive qualities have not been fully examined.—*Medical Press and Circular,* April 27, 1904.

DIONINE: A NEW OCULAR ANALGESIC.

In the *British Medical Journal* of April 30, 1904, HINSHELWOOD reports upon this comparatively new drug. He has recently, in cases of deep-seated pain due to inflammatory affections of the eye, such as iritis, cyclitis, iridocyclitis, and glaucoma, carried out comparative experiments with regard to the power of cocaine, holocaine, and dionine in relieving pain. He has used three solutions—cocaine, 5 per cent; holocaine, 1 per cent; and dionine, 5 per cent—alternately in the same cases with the view to determine the degree and also the duration of the relief afforded. Cocaine is by a long way at the bottom of the list both as to the degree and duration of the relief afforded. Its analgesic effects are not to be compared with those produced by holocaine and dionine in this particular class of cases. Cocaine only gave very partial relief as compared with the great relief afforded by holocaine and dionine. The analgesic effects of the dionine were found to be even greater than those of holocaine.

With regard to the duration of the relief afforded both holocaine and dionine were much superior to cocaine; but here too dionine was at the top of the list. The partial relief from cocaine rarely lasted more than an hour, whilst the analgesic effects of holocaine and dionine lasted for three and sometimes for four hours. For the relief of the severe deep-seated pain in inflammatory affections of the eye, both as regards degree and duration of the analgesia produced, the writer has found dio-

nine the most powerful agent, next to it holocaine, and, a long way inferior to both, cocaine.

There is an occasional effect of the dionine regarding which the patient must be warned, otherwise it may cause him much needless alarm. After the first instillation there sometimes appears an intense chemosis of the conjunctiva, which swells up and overlaps the cornea. This need cause no alarm, as it rapidly subsides, and it is even an appearance to be welcomed, as in these cases where the dionine produces intense chemosis its analgesic effects seem to be greatest. This chemosis of the conjunctiva appears only after the first or second instillation of the dionine, and never after the subsequent ones, and need not interfere in the slightest degree with the regular use of the drug. The dionine drops or ointment may be used every four, six, or eight hours, according to the severity of the pain and the effect produced.

ADRENALIN IN NEUROTIC HEART.

MYRTLE in the *British Medical Journal* of April 30, 1904, states that nothing has been more forcibly impressed upon the minds of the profession during the last fifteen years than the great and steady increase of heart cases of neurotic origin. On examining such in a quiescent state, one discovers nothing abnormal with heart or pulse. The attack generally comes on suddenly without apparent cause—the patient, feeling perfectly well, detects a little flurry in the heart's action with a sense of oppression or weight; the pulse is feeble, very irregular, and intermittent, beating rapidly for a second or two, then halting, missing a beat after every third, fifth, or seventh. Respiration is hurried and shortened, but not remarkably so, and a full deep breath can be readily taken. Early attacks pass off generally as quickly as they appear with rest and a glass of whiskey or other stimulant; they can be frequently traced to errors in diet, overfatigue, mental excitement, or functional derangement of the liver. As time goes on they become more frequent and persistent, demanding active treatment. The author has found that full doses of strychnine, 1/20 grain hypodermically or by the mouth, is used with marked advantage; in severe cases he has resorted to ether inhalations without permanent good, and has long discarded digitalis as useless; and he recently met with two cases lasting for days where the above measures, with plenty of brandy, etc., had absolutely no effect.

A gentleman over seventy years of age had been very bad for four days and nights, when a trial of adrenalin was suggested to the writer by his son, who had been using this new therapeutic agent in cases of hemorrhage, internal and external, at the infirmary and in private. He had noticed that in cases where he had found the heart weak, the pulse feeble and irregular, before the adrenalin was given, after its use the heart's action got stronger, the pulse steadier, and while admitting that the improvement in these cases might reasonably be accounted for by the cessation of the bleeding, he advised a trial of the drug in this case and prescribed 20 minims of adrenalin chloride solution every six hours. The pulse was so rapid, feeble, and irregular that it could not be counted, the patient complained of a dull pain with sense of weight over the heart, his expression was anxious, the face and ears ashen, the extremities cold, and the voice reduced to a whisper. After the second dose a little improvement was noticed, and this continued without a check after each dose. After the fifth dose the patient fell asleep in his chair, and in a couple of hours awoke feeling quite himself but very shaky.

Shortly afterward a similar case came under his care—a gentleman close on eighty years of age, of gouty habit. He had been liable to heart attacks for many years. After reading a highly sensational blood-and-thunder novel, the heart suddenly gave way. He began passing large quantities of pale urine; for an hour and a half he had to empty his bladder every fifteen minutes. He was put on the same course as the other patient, and after the third dose was relieved of all discomfort.

In neither of these cases did any unpleasant effects follow.

In milder cases they have given small doses, 5 minims, with 1/125 grain of strophanthin, with the most satisfactory results. The author does not feel warranted in bringing this new remedy as a cardiac tonic to the front on such limited experience, but having watched its ac-

tion most carefully he is convinced of its value, and places it before the profession believing it will prove of great benefit in cases of heart failure such as described, and asserts that he is all the more encouraged to do so after reading the original, bold, as well as successful results obtained by Dr. James Barr, of Liverpool, in dealing with the very worst cases of serous effusion in the cavities of the body, where complications of the gravest kind had to be faced. [See GAZETTE of June 15, 1904.]

THE DRUG TREATMENT OF INEBRIETY.

A paper by Dr. C. A. McBRIDE, on the treatment of inebriety by atropine, in the *British Medical Journal* of April 30, 1904, appears completely to disclose the method which he employs. The method is not novel. It has been followed for a good many years past, chiefly by unregistered practitioners. We may therefore be all the more indebted to Dr. McBride for helping to lift what would appear to be a therapeutic method of some value out of the mire. Information has been communicated to us by independent observers which confirms the conclusions that in certain cases the treatment, of which atropine appears to be the essential feature, has been successful in weaning drunkards from their pernicious habit, and that under favorable circumstances at least they are able to resist the temptation for years. Whether the cure is permanent or not time alone can prove, but no treatment can be expected to work miracles, and there must be on the part of the patient a real desire for amelioration; the atropine apparently produces a distaste for alcoholic drinks, which may perhaps be temporary, but the concomitant tonic treatment is calculated to put the general health into a better condition, and the patient is by so much more likely to regain sufficient will-power to resist subsequent temptations.

A paper by Dr. Blackwell Fenn on the so-called "gold cure" of inebriety also appears in that issue. The use of the double chloride of gold and sodium has often been vaunted as a specific for inebriety. Dr. Fenn would appear to consider it useful, but on comparing the method he describes with that used by Dr. McBride it will be observed that atropine is used in both instances. Dr. Fenn indeed prescribes daturine, but this is a drug of uncertain composition. The name daturine was originally given to the total mixed alkaloids obtained from stramonium before the real nature of this mixture was understood. This is now known to consist of atropine and hyoscyamine. Probably stramonium, hyoscyamus, and belladonna contain no atropine in the fresh state; all contain hyoscyamine, however, and all yield atropine on extraction, the generally accepted view being that this is due to conversion of hyoscyamine into atropine during the process. These two alkaloids are isomers, and the conversion indicated readily takes place, though its extent is a question of conditions—hence daturine is of very variable composition. We find that in the gold prescription the gold at first forms a compound with the cinchona alkaloids and is precipitated. The mixture on keeping darkens considerably and assumes a purplish color. This change indicates that the gold compound is becoming reduced, but to determine whether the gold becomes deposited or whether it forms a colloidal solution would require further experiment. Other metals—for example, mercury—have now been obtained in a colloidal form (in which they are soluble in water), by reduction in the presence of organic matter, and it is just possible something of the kind occurs here. The prescription is a curious one, somewhat reminiscent of the days of polypharmacy, and in view of Dr. McBride's recorded observations it would appear that gold chloride forms no essential part of the treatment.

[The formula spoken of is as follows: Chloride of gold and sodium, gr. 1/20; ammonium chloride, gr. j; alum, gr. 1/20; fluid extract of viburnum, min. x; and tincture of cinchona, min. xl.—ED.]

ACTION OF RESORCIN.

Under this title CLARK writes an article in the *Boston Medical and Surgical Journal* of May 5, 1904. He believes that in the inflammatory stage of eczema accompanied by intolerable itching, burning, or smarting, or all three, resorcin is, perhaps, almost infallible. Its action here is anodyne. It almost immediately after application relieves either of these three

conditions, and the patient is made at once comfortable. It is surprising what benefit may be derived from a comparatively small amount of the drug. Its superiority to diachylon ointment (ung. diachyli) and the various other preparations is most marked. Hence its chief action is to reduce inflammation and soothe irritation. This result has followed so many times in the writer's hands that he cannot think it is entirely accidental or coincidental.

Thus noting its action, we come to its application. For this purpose two methods may be employed—in solution or as an ointment. For the first dissolve 20 grains of resorcin in an ounce of water, thus making a four-per-cent solution. A stronger solution may be employed if found necessary, but this strength has answered thus far in the writer's hands very well.

The application may be made on strips of linen, or lint cut to the desired size, saturated with the solution and then laid over the inflamed surface. The slightest covering over this should be laid, just to keep the application in place. A gauze bandage may be sparingly applied when possible, as over a limb or around the neck or body, etc. It is unnecessary, perhaps, to say that strict cleanliness should be observed in every application. The solution may be used indefinitely—that is, until the disease is under control, or harm follows.

The writer prefers, however, except in some cases, the use of a resorcin ointment. To every ounce of zinc ointment (ung. zinci oxidi benzoati) 20 grains of resorcin is added. Instead of the zinc ointment cold cream may be used (ung. aquæ rosæ). Sometimes from 5 to 10 grains of salicylic acid may be added to the resorcin ointment. A good prescription is this:

℞ Resorcin, scr. ij;
Acidi salicylici, gr. x;
Unguenti zinci oxidi benzoati, q. s. ad ℥ij.

Apply every night or oftener as the condition requires.

In preparing this prescription the resorcin and salicylic acid should be dissolved in alcohol to assure perfect union, then the zinc ointment is warmed over a slow fire and the alcoholic solution of the two are added, or, if powdered, rubbed together and sifted in; the whole cooled slowly and stirred until sufficiently cold. By this method a more fluid and intimate mixture may be obtained.

The salicylic acid acts, probably, as a mild antiseptic. Cold cream and resorcin answer very well together, but greater healing properties may be ascribed to the zinc ointment in combination with the above remedy. Olive oil is also a good menstruum; so is linseed oil or lard, especially when large surfaces are to be treated, having here the advantage of cheapness.

Constitutional treatment, however, is not to be neglected in case it should be required; for resorcin is not a specific. Whether it only possesses palliative powers or is also remedial, in the sense of cutting short the disease, is not known. At least the patient is rendered more comfortable during the inflammatory and irritable stages of the eczema. It is a good remedy, but must not be overrated, which has been the fate of many new remedies when based on empiricism or enterprising advertisements.

The stains on linen and bedclothing produced by resorcin can be removed with strong soap-suds. Smarting may be remedied by cold cream or vaselin, should it occur.

THE DIARRHEAS OF INFANCY AND EARLY CHILDHOOD.

ROTCH gives the following advice as to the treatment of these states in *American Medicine* of May 7, 1904:

In regard to the treatment of these diarrheal diseases which depend upon infection, no great advance has been made. In regard to the diagnosis of these diseases, we really know so little concerning the especial organisms which cause the greater number of enteric diseases represented by diarrhea that we can merely, assuming that we treat these diseases somewhat empirically, say that our position is simply this: We can usually determine whether it is the small intestine or the large intestine which is affected. Looking at the conditions from this point of view, it is probable that success in treatment will be best when the treatment is through the mouth, when the small intestine is affected. We can also, when the group of symptoms is at all typical, usually determine the fermental class of cases with the probability

of slightly marked lesions, and the ileocolitis class of cases when the lesions are more or less decidedly marked. The treatment in these cases is almost purely symptomatic, for we certainly have not found from past experience that germicides can be introduced into the intestine which will either kill the organisms which are producing the lesions or counteract to any degree the effects of their toxins. We know that bismuth can pass through the whole course of the intestinal tract, and a specimen from an infant, to which bismuth was given, which the writer possesses shows that the bismuth colored the mucous membrane far down into the colon. It is therefore rational to give bismuth, always bearing in mind its limited therapeutic properties. Clearing the intestine of bacteria by laxatives, supporting the strength of the patient, and combating the nervous symptoms and hyperpyrexia are the chief indications, and about all that in the past we have been able to accomplish. It is possible that in the future, when we can determine by bacteriological findings which special organism is producing the especial enteric disturbances, we may by the serum treatment accomplish good results, but this is said with a proviso that the symptoms are not caused by a mixed infection.

A word here will not be out of place in regard to the treatment of cases of ileocolitis caused by Shiga's bacillus. In the main the serum treatment has not been especially successful, and according to Park the using of serum in thirty characteristic cases of mild and severe ileocolitis gave somewhat doubtful results. In these cases 200 cubic centimeters was given every day for three days, and the good results when they appeared were noticed in from twelve to thirty-six hours. Some of the cases of the Mannit fermenting type were just as severe as those of the Shiga type. Park states in regard to infection with the Shiga bacillus that he is convinced that whatever the Shiga bacillus does, it does early. How much damage the streptococcus and staphylococcus, which are constantly present, can add to the effects of other bacilli is a point which should be kept in mind.

The serum treatment is, of course, experimental. It must be remembered at the onset that this serum attempts to deal not with the disease, the effects of which are due to poisoning, as is the case with diphtheria; hence it is not a serum which acts as a therapeutic agent alone. What we have to deal with is an organism, and the serum must be able to attack the bacteria themselves and bring about their destruction. In a recent communication from Kruse he thinks he has used the serum in adults in Germany with excellent effect. What this serum will do in the case of children is a matter of experience, but its good effects are most likely to be gotten if it is used early. If we wait until the symptoms are more severe, the outcome is doubtful. The serum then, for the best therapeutic effects, should be given early. The serum, as tested on animals, is very effective. It has rescued guinea-pigs from infection almost without exception. There is not much doubt that many of the most serious symptoms and results which arise in the later stages of bacterial infection are caused by a mixed infection, and that so far as the Shiga serum is concerned we do not have any especial evidence that it can be of much aid when the infection is mixed. We must also allow for the difference of the virulence of the organism in different epidemics, and the difference in type in regard to the responsiveness to the serum of the especial type, Mannit or not. Recognizing the difficulty of making an exact diagnosis in the beginning of a diarrhea, we should appreciate the importance of treating at once even what seems to be a most simple form of diarrhea.

THE EFFICIENCY OF LOCAL TREATMENT AS A FACTOR IN THE CURE OF LARYNGEAL TUBERCULOSIS.

In *American Medicine* of May 7, 1904, SKILLERN writes on this topic. He says that if the arytenoids are slightly infiltrated with the rest of the larynx normal, and the subjective symptoms consist of a slight huskiness and the voice tiring easily, the larynx is thoroughly cleansed with a normal salt solution, and if the turbinates are congested, which is usually the case, they are reduced by the application of adrenalin chloride 1 to 10,000. Finally the whole upper respiratory tract is sprayed with the menthol, camphor, and albolene solution. In this condition the old astringent treatment, while it temporarily relieves the patient, ultimately

does more harm than good by decreasing the elasticity of the tissues and reducing their resisting powers. Steam inhalations have been tried over a period of several years, but appear to be of no value beyond the moral effect they exert on the patient.

When the arytenoid and the interarytenoid spaces are greatly infiltrated and anemic (the rest of the larynx normal) and the patient complains of partial aphonia, and a feeling as if a foreign body were in the throat, etc., the larynx is cleansed as before and the turbinates reduced. A solution of mercuric chloride 30 Cc. (1 ounce) with .65 Gm. (10 gr.) of menthol in equal parts of glycerin and water to the strength of 1 to 1000 is gently swabbed over the affected area. The menthol stimulates the capillary circulation, while the mercury acts as an antiseptic and stimulant to the deeper tissues. The nares are sprayed with the menthol, camphor, and albolene mixture, and the patient is strictly enjoined to use the voice as little as possible. In this form of the disease some authorities recommend all the way from scarification to the punch forceps, but such procedures would seem to be entirely unjustifiable.

In the more advanced condition, when the arytenoids are pyriform, the interarytenoidal space obliterated, the aryepiglottic folds and posterior third of the cords and ventricular bands thick and infiltrated, with the whole larynx bathed in a thick, tenacious mucus, the patient will complain of dysphagia and a constant desire to clear the throat, there will be severe pains in the larynx, and the respiration will be short and frequent. The first indication in this type is obviously to cleanse the larynx with the least possible amount of irritation; as a rule it is extremely hypersensitive. This may be accomplished by first shrinking the turbinates and washing out the nasal cavities and choanæ. The patient is then given a five-per-cent solution of hydrogen dioxide and made to gargle the throat several times; this cleanses the walls of the pharynx, tonsils, and mouth. The larynx is then partially cocainized with a two-per-cent solution and swabbed out with dilute Seiler's solution. A preparation of menthol 32 Gm. (5 gr.), guaiacol and olive oil, of each 15 Cc. (½ oz.), is then applied, and the pharynx sprayed with the menthol, camphor, and albolene mixture. The patient is taught to take nourishment using the Wolfenden position (lying down with the head lower than the body); this relieves the dysphagia because food tends to enter the esophagus through the pyriform sinuses on each side of the larynx, and thus avoids contact with the latter. This condition unless checked will speedily progress with the formation of ulcers over the interarytenoidal space or the arytenoid cartilages, and will gradually creep along the cords and ventricular bands until practically the whole larynx is involved. In the treatment of this condition much has been said both for and against lactic acid. The author uses the acid because nothing better has been found, and because, with many others, he firmly believes it is not the acid as much as the rubbing that brings about good results, the real object being to attract the leucocytes, with the resulting resolution of the part; therefore the following solution, which is antiseptic and preserves whatever inherent action the lactic acid may possess, is used after thorough cocainization: Formalin, 7 parts; oil of cloves, 10 parts; lactic acid, 50 parts; and glycerin, enough to make 100 parts. Orthoform is then insufflated until all the ulcerated parts are well covered. If the orthoform shows signs of losing its effect aristol is used for a short time, with a subsequent return to orthoform. A different type of ulceration often occurs with acute pulmonary tuberculosis, in which the whole larynx is red and swollen, with numerous ulcers, found particularly on the posterior surface of the epiglottis. As the pulmonary trouble usually proves fatal in a few days or weeks, little or nothing can be done beyond the alleviation of suffering.

Regarding surgical treatment in this disease, one must admit that sometimes certain conditions arise in which an operation of more or less severity is demanded, but these are very few.

It is of the utmost importance that the patient's condition will not only warrant the surgical interference, but be able to sustain the system after the operation is completed. Gentle curettement sometimes gives excellent results when there is an excess of granulomata, particularly on the vocal cords, or in ulcerations with an ac-

cumulation of débris. Submucous injections and scarification often cause violent reaction and are prone to leave an ulcerating surface, which may resist all treatment, thereby further provoking the disease.

THE EFFECTS OF CALCIUM SALTS AND GELATIN ON THE COAGULABILITY OF THE BLOOD.

GLEY and RICHAUD *(La Presse Médicale,* April 20, 1904) state that in order to increase the coagulability of the blood by administering the salts of calcium, care must be taken to give only very small doses, for the reason that large doses decrease the power of coagulation, as they have proved by experiments upon animals. Inasmuch as it is impossible to determine the exact amount of calcium required to produce the greatest degree of coagulability, they are of the opinion that this substance is really of little practical therapeutic value.

Their experiments relative to the action of gelatin upon the blood lead them to conclude that whatever coagulative power it may possess is due to the presence of minute quantities of calcium salts; that many samples of commercial gelatin contain certain albumoses which distinctly reduce the coagulability of the blood; and finally, that gelatin should be rejected entirely as an antihemorrhagic agent.

THE PRESENT TREATMENT OF DIPHTHERIA.

RAMSEY contributes to the *St. Paul Medical Journal* for May, 1904, an article on this subject. The points which the writer especially emphasizes in this paper are:

1. That antitoxin if given early is a specific in fully 95 per cent of all cases of diphtheria.

2. That even in late cases the mortality is greatly reduced.

3. That sufficient amounts of antitoxin should be given to produce the desired results.

4. That death results in many cases from the damage done to the heart and nervous system before antitoxin is given, and that in these cases absolute rest in the recumbent position and sufficient stimulation are factors of the greatest importance.

5. That there is a certain small percentage of cases apparently in which antitoxin has no effect even when given early.

6. That postdiphtheritic paralysis is apparently no less frequent than before antitoxin.

7. That intubation and tracheotomy, where the heart shows evidence of weakness, should be done with the patient in the horizontal position.

8. That heart symptoms sometimes arise as late as several weeks after the patient is apparently well, and that careful examination of the heart should be made daily.

9. That alarming symptoms are sometimes produced by antitoxin, and that we should employ it with some reserve, using every means at least within our power to make a proper diagnosis, but always in doubtful cases deciding on the side of safety, and giving antitoxin the benefit of the doubt.

THE MODERN TREATMENT OF THE MORPHINE HABIT.

FROMME *(Wiener Klinisch-Therapeutisch Wochenschrift,* May 1, 1904) considers Argemone Mexicana a valuable drug in the treatment of the morphine habit. His method of employing it is as follows: On the morning of the second day after the patient has entered the sanitarium his morphine is entirely withdrawn, and the administration of fluid extract of Argemone Mexicana begun in doses varying from 6 to 9 cubic centimeters four times a day, the exact dose given depending upon the quantity of morphine which the patient is accustomed to take. For every gramme dose of morphine 8 or 9 cubic centimeters of the remedy is allowed. After two or three days the quantity is gradually diminished, the largest dose always being given at bedtime, so that the patient's nights may be made as comfortable as possible. As a rule the treatment is continued for about four weeks, during which time the remedy is being continually decreased. During this time the condition of the patient is normal, no abstinence symptoms appearing until the remedy is entirely withdrawn. The symptoms which then develop are mild nervous disturbances,

which are readily controlled by hydrotherapeutic measures and the administration of simple remedies. For insomnia Fromme uses trional in doses of from 1.5 to 2 grammes, or veronal 1 gramme. The latter drug he considers to be a thoroughly reliable and safe hypnotic. At the beginning of the treatment hydrochloric acid is administered in order to aid digestion, while later in its course an occasional dose of alkaline purgative water is given. Warm baths are frequently given to increase elimination.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY SUBCUTANEOUS INJECTIONS OF CAMPHOR.

WALTHER KOCH, of Freiburg (*Berliner klinische Wochenschrift*, May 2, 1904), reports the results of five years' experience with subcutaneous injections of camphor in the treatment of pulmonary tuberculosis, and states that the method has proved very satisfactory. The temperature falls to normal and remains so for a considerable time, the expectoration is increased, night sweats cease, and the general condition of the patient becomes much improved. Many patients who were in the second stage of the disease, and who at the time treatment was begun were suffering from considerable fever, were soon able to resume work, and remained so well that their cases are considered as cured. Those in the last stage of the disease were benefited temporarily, especially as regards the decline of temperature and cessation of night sweats. Koch also claims to have obtained excellent results in the first stage of tuberculosis from inunctions of camphor, 0.4 of the drug being used at each inunction. Several cases are reported in detail.

THE THERAPEUTIC USES OF SCOPOLAMINE.

LIEPELT (*Berliner klinische Wochenschrift*, April 11, 1904) states that he has obtained excellent results from the use of scopolamine hydrobromate in all conditions of mental excitement, and that he considers it superior to chloral and morphine, especially in delirium tremens, as it is more certain in action, and has no unpleasant after-effects. He cites several cases in which the drug worked well after chloral and morphine had failed. Liepelt uses the drug hypodermically and always in freshly prepared solution. The dose administered depends upon the degree of excitement it is desired to overcome, the age of the patient, and his weight. Generally 1/100 of a grain is enough to produce a distinct sedative effect. Quietude supervenes at once and often lasts for three to five hours. In a few cases failure has occurred, but no untoward results have ever been experienced. In the majority of instances the action of the drug has been entirely satisfactory, and Liepelt believes that its use should become more general. [Hyoscine and scopolamine are practically identical.—ED.]

THE TREATMENT OF CHRONIC LARYNGITIS AND PULMONARY TUBERCULOSIS BY INTRATRACHEAL INJECTIONS OF EUCALYPTOL.

As the result of experience based upon the treatment of nineteen cases, ANTONY (*Archives de Médecine et de Pharmacie Militaires*, May, 1904) concludes that the use of intratracheal injections of eucalyptol in certain cases of chronic laryngitis and in the majority of cases of pulmonary tuberculosis constitutes a method which is easy of application, well tolerated, and capable of producing most advantageous results. The method does not disturb digestion, and is less painful than subcutaneous injections of various substances which recently have been extolled in the treatment of pulmonary tuberculosis. Of the nineteen patients treated three had chronic laryngitis and sixteen pulmonary tuberculosis in the second or third stage. One of the patients affected with laryngitis did not follow the treatment faithfully and obtained only a temporary benefit. The other two were much benefited, both as regards the condition of the larynx and the state of the general health. A complete restoration of the voice, however, was not obtained. One of the sixteen affected with tuberculosis received only one injection, and is excluded from the number considered. Of the fifteen who received treatment three derived no benefit whatever, while twelve improved very much under its use, their general condition becoming better, body weight increasing several kilogrammes, and most

of the pulmonary symptoms disappearing or becoming greatly ameliorated.

The injections are given with Beehag's laryngeal syringe, three cubic centimeters of a solution of eucalyptol in olive oil, 5 to 100, being employed. As tolerance is established the strength of the solution may be increased to 7 or 8 to 100. The metal cannula of the syringe is covered with a piece of rubber tubing which projects beyond its tip, thus preventing it from touching the mucous membrane of the larynx. Antony states that excessive irritability of the pharynx, intense tuberculous infection, and tendency to hemorrhage contraindicate the employment of this method of treatment.

INTRAVENOUS INJECTIONS OF THE SALICYLATES IN THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM.

FELIX MENDEL (*Therapeutische Monatshefte,* April, 1904) has treated eighty cases of different rheumatic diseases, including acute, subacute, and chronic arthritis, sciatica, lumbago, and peliosis rheumatica, with intravenous injections of the salicylates, and states that this method surpasses any other with which he is familiar, as it removes the inflammation of the joints, nerves, muscles, and serous membranes quickly and surely, relieves pain, and influences concomitant fever only in so far as it modifies the general condition of the patient by combating infection. Sudden remissions of temperature accompanied, or followed, by exhausting sweats were never observed, nor in fact were any of the unpleasant effects, such as tinnitus aurium, nausea, and vomiting, which so often supervene after the internal administration of salicylic acid and its compounds. In most of the cases the urine was examined before and after the injections were made, and in none of them was more than a trace of albumin found. Moreover, the treatment did not affect the heart.

In addition to possessing the advantage of rapidity of action, and being free from all unpleasant effects, Mendel states that this method of treatment was successful in many cases in which internal and external salicylate therapy had failed, and he thinks that it is in just this class of cases that the intravenous method will find its highest degree of applicability and value. Good results also were obtained by the use of one or two injections in several persons who were subject to fleeting pains in the joints and limbs after every exposure to dampness and cold. Mendel uses the following combination of the salicylates:

> Sodium salicylate, 2 drachms;
> Caffeino-sodium salicylate, ½ drachm;
> Distilled water, 12 drachms.

Thirty minims of this solution is the ordinary dose for adults, the injection being repeated in from twelve to thirty-six hours according to the effect which it produces. The caffeino-sodium salicylate is used because it has been shown experimentally to have no untoward effect upon the blood-corpuscles nor upon the endothelium of the blood-vessels. In the proportion in which it is combined with the sodium salicylate it counteracts the effect of the latter drug upon the blood-corpuscles. Mendel always makes his injections into a vein of considerable size. Neither pain nor inflammation follows if proper technique is observed.

[We can scarcely believe that this plan is wise.—ED.]

THE USE OF ALCOHOL AS A MEDICINE.

In the *Glasgow Medical Journal* for May, 1904, FINDLAY in a valuable article has this to say about this always interesting topic: Much diversity of opinion has been expressed regarding the effect of alcohol on the pulse-rate, but the most careful work of the last fifteen years shows beyond a doubt that, even in quantities sufficient to produce transient disturbance of the mental faculties, pure ethyl alcohol diluted with water has practically no influence on the pulse-rate of healthy men. So certain is this that we may with confidence assert that, if half a glass of whiskey accelerates the pulse to any appreciable extent, then the owner of that pulse is not in a condition of perfect health. The strength of the pulse in the healthy likewise remains unchanged, though the pulse may feel fuller to the examining finger. No support can be found for the view that there is ever any increase in the pulse tension after alcohol, either in health or disease. Alcohol cannot slow the abnormally rapid pulse of

disease, unless that rapidity is due to some functional disturbance which the narcotizing influence of alcohol can quiet. There is not a particle of evidence to prove that alcohol can stimulate the vagus mechanism, and, indeed, so far as we can find, absorbed alcohol is unable to influence any of the cardiac nerves. Speaking somewhat generally, it may be said that the pulse-rate depends on the condition of the cardiac pump—the heart—and on the state of the blood-vessels. Dr. Monro has shown that at no stage of alcoholism is the cardiac muscle stimulated, and that in large doses alcohol acts on the muscle fiber of the heart as a deadly poison. This paper mentions that alcohol cannot help the circulation by tightening up the greatly relaxed blood-vessels in the severe infections, though it has also been pointed out that alcohol may be unable to make matters worse so far as the blood-vessels themselves are concerned. In these cases of high fever the heart beats very quickly, for in order to deliver a sufficient quantity of blood to the tissues through dilated vessels an enfeebled heart can only do so, or attempt to do so, by contracting more frequently, and it may be said that the frequency of the pulse bespeaks the urgency of the cardiac enfeeblement. If alcohol can be given under these circumstances, it can only cause further embarrassment to the heart; the blood-pressure, unless the heart can put on a still quicker pace, or even in spite of a quicker pace, invariably falls. If the disease has already so seriously affected the cardiac musculature that the further disabling action of the alcohol on the muscle of the heart cannot be compensated for by an increase in the pulse-rate, then the heart gives in—throws up the sponge, so to speak—and beats irregularly and slowly.

Though all the newer research has given, or should have given, the death-blow to alcohol as a cardiac stimulant, we are by no means finished with the alcohol question. Not so very long ago alcohol was extolled as almost a specific in sepsis and the infections, and at this moment many look on alcohol as a remedy capable of neutralizing microbic toxins, while others hold that to give alcohol in these conditions is but adding fuel to the fire. Clinical experience in this field is most contradictory, and even laboratory results do not give us the positive information we desire. Several observers have shown that alcohol renders animals more susceptible to microbes and their toxins; they show that alcoholized animals are immunized with difficulty or not at all, and that the continued administration of alcohol causes animals to quickly lose any immunity they may have acquired. But these results teach us nothing that we can make use of for man, since we find that, had a man received as much alcohol in proportion to his weight as these unfortunate animals received, he would have been drinking not much less than half a bottle, and sometimes even more than three bottles, of 50-per-cent brandy in the twenty-four hours. Now, these large quantities of alcohol caused digestive disorders, emaciation, hypothermia, and other disturbances in the animals experimented on, so that additional factors are introduced to prevent us transferring *in toto* these results to man. Nevertheless, it appears to be pretty well proved and accepted that alcoholism in man predisposes the body to infection by various microbes, and we might quite logically infer that, since this is so, it must be equally true that alcoholic therapeusis will predispose to an extension of the morbid process, which is merely a continued infection and invasion of other and surrounding tissues. Such reasoning, however, is not altogether justified by experimental results; still, support is lent to such a view by some of the most recent researches, though with therapeutic doses—equal to from about 2½ to 4 ounces of 50-per-cent brandy for a man—results are not so telling against alcohol.

RECURRENT DISLOCATION OF THE PATELLA.

Recurrent dislocation of the patella is seen almost entirely in girls or women, and is due in large part to the fact that the line of pull of the quadriceps extensor muscle is not straight, this feature being increased in its effect by an unnaturally long patellar tendon, knock-knee, or an imperfectly developed articular surface at the end of the femur.

Eleven cases of this condition—seven operative, with thirteen operations, and four non-operative—have been treated by GOLDTHWAITE (*Boston Medical and Surgical Journal,* Feb. 18, 1904).

The displacement of the patella may occur frequently with simple muscular traction, or may develop only when attended with application of considerable force, combined with some lateral strain. In extreme conditions the displacement may become permanent, in which case the inner portion of the capsule becomes permanently stretched, while the outer portion shortens, in which case the patella rests on the outer surface of the outer condyle of the femur, and complete extension is impossible. If the patella has slipped out several times without special violence it is an evidence of joint instability, and while the slipping may be controlled by simple measures, the weakness usually remains and the joint is unable to stand the strain of normal use, although bandaging, braces for the knees, and the correction of flat or pronated feet should always be tried in the early stages. Little is to be expected from such measures in the way of permanent relief, unless the patient be very young. The chief point in the treatment consists in correcting as far as possible the angle of the line of muscle pull. The knock-knees, if present, should be corrected. If the patellar tendon be long, so that in complete extension the patella is drawn above the outer edge of the trochlear surface of the femur, it should be shortened. At the same time the attachment of a portion of the tendon should be altered, thus making the line of pull more nearly straight. In one case in which the tendon was simply shortened relapse occurred. Entire relief followed the second operation, in which the outer half of the tendon was transplanted. In the majority of cases the attachment of the patellar tendon is distinctly farther to he outside than normal, making less direct the pull on the anterior thigh muscles, and with this the ridge of the outer edge of the articular surface of the femur is less marked than normal.

The operation consists in a longitudinal incision 4 or 5 inches long, extending from just below the tubercle of the tibia upward; through this the patellar tendon is exposed and split in halves, anteroposteriorly, throughout its entire length. The outer half is then cut from its attachment, passed under the remaining portion, and attached to the periosteum together with the fibrous expansion of the sartorius tendon over the inner anterior surface of the tibia. If it seem desirable to shorten the patellar tendon, the attachment can be made at a lower point, but as this means much greater tension on the new attachment a hole should be drilled in the bone, through which the tendon sutures may be passed. By carrying the free portion under the other the patella is tilted, the outer portion being drawn downward, and it impinges more firmly against the outer ridge of the articular surface of the femur during muscular contraction, so that the danger of displacement is materially lessened. The attachment is made with strong silk quilted through the tendon. The wound should be tightly closed, and the leg fixed in a plaster-of-Paris cast from the ankle to the groin; the traction of the quadriceps extensor being eliminated, as much as possible, by applying a tight gauze bandage from the knee to the groin, under the plaster. The fixation should be kept up about six weeks.

Of the operative cases four had the outer half of the patellar tendon, and one had the entire tendon, transplanted to the inside, and as three had both knees treated, there were eight operations, with normally strong joints in seven, the result in the eighth being uncertain, sufficient time not having elapsed since operation.

Of the three cases in which other operations were performed, in one with both knees, the capsule was quilted; in one the patellar tendon was shortened; and in one the inner half of the tendon was transplanted and the capsule was quilted. All relapsed. In one of these a second operaation with transplantation of the outer half of the tendon was performed, with a perfect result. The two remaining cases did not submit to a second operation.

EXTRACTION OF FOREIGN BODIES FROM THE BLADDER BY INFRAPUBIC INCISION.

In a case in which operation was demanded for the removal of a douche nozzle from the bladder of a young woman, Legueu employed an infrapubic incision, separated the urethra from the symphysis as far back as the bladder, incised the roof of the urethra, dilated the vesical sphincter, and easily removed the foreign body. A single suture served to restore the urethra, after which the urethrovaginal flap was replaced and sutured. If primary

union fails to occur after the infrapubic operation, fistula does not result.

The advantages of this operation are: (1) The ease of performance; (2) a minimum of shock and traumatism; (3) the absence of a conspicuous scar; and (4) the prevention of serious sequelæ.

This operation is particularly serviceable (1) for calculi not amenable to lithotrity, especially in women with thick abdominal walls, and (2) for the extraction of foreign bodies which cannot be removed through the urethra.

LEGUEU and CATHELIN *(Tribune Médicale)* suggest a similar operation for the removal of calculi in old men. In operations upon the cadaver they have been able to extract calculi the size of small nuts. This incision permits of thorough digital exploration of the bladder. No important organ need be cut, and the bony attachments of the corpora cavernosa can be preserved.

A SIMPLE STERILIZER.

STEWART (*Medical News,* Dec. 12, 1903) describes a simple sterilizer made with such every-day articles as a wash-boiler, an awl, strong washing-soda, water, and a fire. Through the flange of the boiler cover, at each of the four rounded corners, a hole is punched in such a manner that it will be closed in by the boiler rim when the cover is in place.

After packing the cover with the heavy bed-linen, sheets, etc., to be sterilized, a crisscross network is made over the fabrics, passing the string through each hole. The instruments are placed in the boiler itself and covered with six inches of water, to which is added a tablespoonful of washing-soda. The cover is replaced, and sterilization is secured by boiling over a gas, kerosene, or other flame. After boiling the cover may be used as a sterile tray, and should be stood, bottom upward, upon a convenient table.

The pressure in an ordinary wash-boiler is sufficient to raise the temperature a full degree above the boiling point of water. The soda solution must be kept free from vaselin or grease when boiling. Boiled out water, covered by a layer of oil, may be raised to 120° C., when it will suddenly boil with an almost explosive violence, which renders kitchen demonstrations of this experiment undesirable, a vacant lot furnishing better chances of escape.

NON-UNION OF FRACTURES.

Without treatment fractures in rabbits unite in fifteen to eighteen days. If the fragments are moved purposely twenty to twenty-five days is required.

In fractures treated without splints a larger callus forms than when immobilization is practiced; pseudoarthrosis, however, does not occur, nor were CORNIL and COUDRAY (*Tribune Médicale,* Dec. 12, 1903) able to produce a false joint by interposing fluids between the fragments. Fibrous tissue, which forms between the fragments, prevents too great mobility until ossification is complete. Failure of ossification should be ascribed to general causes and not to faulty immobilization.

The statement that fractures immobilized the best fared the best was declared erroneous long ago by Championnère, who believes that treatment of fractures based on this principle, if not harmful, is at least useless, while in fractures with a joint the results are deplorable. The writers advocate the abandonment of immobilization, especially in fractures at the upper end of the humerus.

GONORRHEAL EPIDIDYMITIS TREATED BY SUBDURAL INJECTIONS.

Sicard recommended the injection of cocaine or other medicaments into the sacral canal below the cone-like extremity of the dura in order to bring the drug in direct contact with the sacral roots for relief of painful affections in the area of distribution of the sacral plexus. He employed this method in the treatment of sciatica, lumbago, zona, etc., and found it to be perfectly safe and efficacious. Cathelin successfully used subdural injections in the treatment of diseases of the urinary passages. More recently ROUSSY (*Tribune Médicale,* Jan. 9, 1904) has employed this method in the treatment of those cases of acute gonorrheal epididymitis in which the severe pain could not be controlled by the customary measures. Of 34 cases in which subdural injections were given spontane-

ous pain completely and finally disappeared after the first injection in 23; relief did not occur until the second or third day in 4; the injection had to be repeated in 6; and the result was negative in one. In some of the cases treatment was followed by a fall of temperature and improvement in the general condition of the patient. The 34 patients spent an average of 16½ days in the hospital, while in 100 cases under the usual method of treatment the average stay was twenty-three days. It is doubtful if the injections exerted any influence upon the swelling of the epididymis. The clinical history of the cases demonstrates that the treatment is unobjectionable and efficient, and gives prompt results.

The genupectoral position is the best for making the injection, as it causes the sacral spines to project prominently, and it gives the surgeon full control over the patient. The sacral cornua and the last spinous process of the sacrum form a V open downwards, in the acute angle of which the needle should be introduced perpendicularly to the cutaneous surface until the skin and the fibrous membrane closing the hiatus sacralis have been traversed, and then the handle of the syringe is depressed and kept parallel to the sacral column while the needle is inserted to its hilt. The needle was made of platinum with an iridium point, and was 5 centimeters in length. Three to four cubic centimeters of a one-per-cent solution of cocaine hydrochlorate was employed at each injection.

PRURITUS ANI TREATED BY X-RAYS.

PENNINGTON (*New York Medical Journal and Philadelphia Medical Journal,* Feb. 20, 1904) reports thirteen cases of pruritus ani treated by exposure to the *x*-ray. Most of the cases were cured, and though still under treatment, all improved. In none of the cases has there been produced a dermatitis, or any other ill effect. The skin is left smooth, soft, clean, and pliable. While there is no objection to the use of other procedures in conjunction with the *x*-ray, yet none were employed in these cases, and the results have been so similar and constant in all of them that they are undoubtedly due to the action of the Roentgen ray.

PERIGASTRIC ADHESIONS — SURGICAL TREATMENT.

It has been shown by post-mortem records that in about five per cent of examinations evidence of an active ulcer of the stomach, or a scar of an old one, is present. It is also stated by Fenwick that in forty per cent of such ulcers there are adhesions. These figures seem to show that in about two per cent of persons adhesions will be found to be present, if the gastric regions be carefully examined after death. In only a small proportion of the cases do any symptoms arise in connection with the adhesions. Ulceration of the stomach and duodenum and disease of the bile passages are the most common, and from a practical point of view the most important, causes of perigastric adhesions, but they may also be caused, according to PATON (*Lancet,* Feb. 6, 1904), by traumatism, malignant disease, pancreatic disease, umbilical hernia, and possibly by tuberculosis and syphilis.

In 123 cases analyzed by Fenwick the stomach was adherent to the pancreas, the liver, or to both of these organs in 92 cases; in the remaining 31 cases the stomach was attached to the colon, the liver and colon, the spleen, the mesentery, or to three or more organs at once.

Perigastric adhesions are more apt to cause symptoms when the attachment is to one of the more mobile organs. The nature of the connection with other parts may be classified roughly into two varieties: (1) those in which the attachment is close and the connection broad, covering a wide area, in which case the organs most commonly involved are the liver and the pancreas; or (2) the adhesions may be long and slender, or cord- or wire-like, this variety being more usual to the colon, gastrohepatic omentum, gall-bladder, or rarely to the anterior abdominal wall. Occasionally adhesions in the infiltrated stomach wall and the thickened abdominal parietes form a marked abdominal tumor, which may be mistaken easily for a new growth. This condition is one of plastic perigastritis, and is caused by local perforation of the stomach, the extravasation having been limited by the adhesions.

The pylorus may be markedly narrowed by adhesions, which when separated allow it fully to attain its normal lumen. In other cases described the stom-

ach has been nearly divided into two parts about its middle by an adhesion, and has returned to its normal shape on the division of a simple band. In other cases dilatation is caused by traction or interference with the motility and power of contraction of the organ, or possibly by the prevention of contraction of an ulcer, which by this means may be hindered from healing.

The symptoms referable to perigastric adhesions not infrequently are preceded by those which are characteristic of gastric ulcer, or gall-stone colic. The more acute symptoms have passed off and have left the chronic trouble, upon which no treatment seems to have more than a temporary effect.

Pain is a most common and characteristic symptom of perigastric adhesion. The pain is confined commonly to one location, is variable in severity, sometimes being so bad as to double the patient up, at other times and in other cases only amounting to considerable discomfort. It may or may not be influenced by the taking of food. Eating has relieved the pain in a few cases. Changes in the position of the patient, thereby relieving the drag on the adhesions, not uncommonly give great relief. Exertion of a more or less violent character in some cases provokes severe pain. Again, in some cases, the pain is relieved by firm pressure or by tightly bandaging the abdomen. Tenderness, generally localized, is an almost constant feature of the trouble. Vomiting is rarely present, though occasionally it is troublesome. It usually occurs at irregular intervals and without demonstrable cause, and it may or may not bring relief to the pain. Symptoms in a typical case are not severe enough to interfere to any great extent with the general health of the patient.

In the cases in which the adhesions connect the stomach and gall-bladder, jaundice may occur and may be persistent for a long period, but as a rule it is only a fugitive condition, coming and going in an irregular manner.

Careful dieting exerts but slight influence on the pain and discomfort. This in itself is suggestive of the true cause of the trouble, as in most digestive disturbances relief is obtained by careful feeding. Physical examination as a rule reveals nothing beyond tenderness. The gastric juice is normal, and usually there are no signs of gastric dilatation. Rarely dilatation may be present.

In the majority of cases only a tentative diagnosis can be made. An exploratory operation should be recommended. If adhesions are found, they should be separated or divided if this is possible. If none is detected at first, the stomach should be dragged in various directions so as to make visible bands which might otherwise be overlooked.

The recurrence of adhesions should be guarded against by rigid asepsis and by refraining from using antiseptics within the abdominal cavity. Movement among the viscera should be promoted after operation by allowing the patient to move from side to side in bed, by employing gentle massage to the abdomen, and particularly by promoting peristalsis, so that the parts liable to adhere are not likely to lie at rest in contact with one another for a long period.

In some cases in which adhesions are extensive, or in which their separation is not practicable, resort may be had to pyloroplasty or gastrojejunostomy. These operations permit the stomach to empty itself more easily, thereby preventing distention and traction on the adhesions, which otherwise would occur when the stomach is full.

The author has collected forty-two cases which have been operated upon. The results as a whole have been eminently satisfactory. Patients who previously had been unfit for any sort of employment and were chronic invalids were restored, in some cases, to complete health.

HEADACHE FROM NON-SUPPURATIVE INFLAMMATION OF THE ACCESSORY SINUSES OF THE NOSE.

ROBERTSON (*Journal of the American Medical Association,* March 5, 1904) calls attention to headache caused by disturbance of air-pressure in the accessory sinuses of the nose. This disturbance is comparatively common and produces all the symptoms of an empyema, except the discharge. The condition is caused by obstruction to the ingress of air to the particular sinus by closure of its natural orifice. The imprisoned air loses its oxygen from absorption by the

blood-vessels in the mucous membrane of the cavity. The pressure on the mucous membrane is lessened by the rarefication of the air contained in the cavity, and the mucous membrane becomes swollen. If the opening becomes patent the condition subsides, but in cases where the opening remains closed for some time the cavity is encroached on by the swelling of the mucous membrane, by the pouring out into the cavity of lymph, and by the engorgement of the mucous membrane itself.

The condition is comparable to non-suppurative inflammation of the ear, caused by occlusion of the Eustachian tube. The symptoms vary according to the time the sinus remains closed. The usual objective signs of empyema are absent, there is no mucopurulent discharge, and transillumination gives a negative result. Swelling and congestion of the mucous membrane around the orifice of the sinus is present. Headache in these cases is relieved promptly by treatment of the tissues which are the cause of the trouble. Attention to the middle turbinated body is imperative, as it is the key to the most important part of the nostril.

MULTIPLE SARCOMATA.

Cases of multiple sarcomata have been reported in which the tumors seem to have been multiple from the beginning, but CLAYTOR (*American Journal of the Medical Sciences,* March, 1904) thinks it more probable that there is a primary growth which may have escaped notice, so rapidly was it followed by an outburst of metastatic tumors. The secondary growth may be pigmented, or non-pigmented, or may be mixed—*i.e.,* some may show melanotic material, while others are entirely white.

They may belong to the round, spindle, or myeloid form of sarcoma, or the cells may change from one form to another during the progress of the disease; and the tumors usually appear as small round nodules, the size of a shot, which rapidly develop into oval or round plates which may be somewhat depressed in the center.

The size to which they may grow is indefinite; as a rule, however, few reach a greater diameter than one inch. They are situated either in the skin proper or in the deep fascia; hence may move with the skin, or the skin may move freely over them.

Ulceration may occur either from pressure or from subcutaneous breaking down of the new tissue. They may or may not be encapsulated. The latter condition is said to improve the outlook. The appearance of the cutaneous or subcutaneous nodules is either preceded or rapidly followed by an inflammation, more or less rapid, of the tissues, which in a longer or shorter time causes death.

The primary growth may be a pigmented mole situated anywhere on the skin. It may be in the subcutaneous tissue, or may spring apparently from the bone, skull, vertebra, or from an internal organ. All melanotic growths are not sarcomata. Unna states that all growths with metastasis which start from pigmented moles are really melanotic carcinomata, rather than sarcomata. The clinical behavior usually is the same.

The symptoms are not distinctive; besides wasting, there are likely to be those which arise from tumors, such as ascites, pain, etc. The blood shows nothing, except a severe secondary anemia. In a fully developed case with more or less widely spread nodules, the diagnosis is simple. In the early stages the condition may be mistaken for leukemia, pseudo-leukemia, lymphosarcoma, tuberculosis, or syphilis. The fact that all of these conditions involve the lymphatic glands, and hence are found in lymphatic areas only, is of diagnostic importance, for the sarcomatous growths usually are found in greatest abundance where lymphatic glands do not exist. Lymphatic leukemia may be excluded by blood examination, the other possibilities only by observation of the case for a longer or shorter period of time, depending on the rapidity of the metastatic growths. If the skin has been involved, the growth after excision is almost sure to recur at the original site, but if subcutaneous, the danger is much less.

The rational treatment would seem to be that of prompt and complete removal of all suspicious growths, especially if they show signs of the slightest activity. In many of these cases extirpation of the primary growth is followed so quickly

by an outburst of secondary tumors that it seems probable that the operation acts as a stimulant to a more or less quiescent condition, and therefore hastens the inevitable result. The question of operation is one which requires careful consideration.

Of drugs, arsenic is the only one which has proven of any value. Cases of great improvement or of apparent cure have been reported from the use of arsenic, but the outlook under any circumstances is unfavorable.

FACIAL PALSY—SURGICAL TREATMENT.

According to TAYLOR and CLARKE (*Medical Record,* Feb. 27, 1904) surgical treatment is indicated in all cases of palsy of the facial nerve from a lesion of the nucleus within the brain, or of the nerve trunk on the base of the brain, and in lesions of the nerve following operation for mastoid disease, as recovery from these affections is rare. It is justified in Bell's palsy when there is complete reaction of degeneration in the muscles supplied by the facial nerve after several months of faithful treatment, and there is no indication of the volitional return of nerve power.

The best operation for the relief of facial palsy consists of implanting the distal end of the facial nerve into the hypoglossal nerve. In performing the operation a firm cushion is placed behind the head and neck, and the face is turned slightly to the opposite side and extended upon the neck. The skin and subcutaneous tissues and sternomastoid muscle are divided along the anterior margin of the mastoid process for the distance of two inches, starting at the level of the external auditory meatus. The parotid gland is avoided by dividing the deep fascia close to the anterior border of the mastoid process. The parotid is held forward by a blunt retractor, exposing the posterior belly of the digastric muscle, which is pulled downward and backward.

The index-finger, pushed into the depth of the wound and slightly forward, readily identifies the styloid process. Near the base of this process the trunk of the facial nerve passes almost directly forward and enters the parotid gland, and usually can be felt as a distinct small cord, surrounded by connective tissue, to roll between the finger and the styloid process. The nerve is enucleated from the surrounding connective tissue, and is divided as far up the stylomastoid foramen as a narrow-bladed sharp knife will allow. About one-eighth inch from its free end two fine silk sutures are passed through the nerve sheath on opposite sides of the nerve, and each is tied in a square knot, the ends being left long. The nerve is trimmed to a wedge shape with a sharp scalpel. The prominent smooth transverse process of the atlas serves as a guide to the hypoglossal nerve.

Not infrequently the occipital artery runs upward and outward across the anterior surface of this prominence. It should be looked for, and when present either displaced outward or divided between two ligatures. Care should be taken to avoid the spinal accessory nerve, which runs obliquely downward and outward over this process, and the internal jugular vein, which runs vertically in front of it.

A vertical incision about 1½ inches long is made through the deep cervical fascia, over the outer border of the transverse process. Through this slit in the fascia the internal jugular vein is exposed, and is separated posteriorly by blunt dissection. The spinal accessory nerve should not be disturbed. The fascia and vein are retracted forward and inward by a blunt retractor. Embedded in the connective tissue thus exposed are seen two white cords, the hypoglossal and pneumogastric nerves, with the external carotid artery pulsating just to the inner side. Usually the more superficial of the two nerves is the one sought, but it must be identified more definitely. Mechanical or electrical stimulation will cause contraction of the muscles which it supplies, or the nerve may be traced downward to the point where it turns forward around the occipital artery and gives off the descendens hypoglossi nerve. After identification it is dissected upward, until the stump of the facial can be approximated without tension. Care should be taken, at this stage, to avoid dividing the communicating branches from the pneumogastric, upper ganglion of the sympathetic, and two upper cervical nerves.

While the nerve is supported on a blunt hook a longitudinal slit one-fourth inch long is made in the trunk. A fine curved needle is threaded to one of each pair of the silk ends previously left tied to the stump of the facial nerve. One suture is passed through the inner and the other through the outer margin of the wound in the hypoglossal nerve. When the sutures are tied the wedge-shaped end of the facial is held snugly in the cleft in the hypoglossal nerve, and is best turned slightly upward by means of a probe. These sutures should not be tied tightly.

To prevent the ingrowth of connective tissue elements, Cargile membrane is wrapped about the nerve junction. The hypoglossal is dropped back to its normal position, and usually there is no tension on the sutures. As a rule deep sutures and drainage are not required, and fixation of the head and neck is not necessary.

Massage and electricity must be persistently and systematically resorted to for months after the operation. As soon as voluntary power over the muscles begins to return, the patient should be taught systematic exercises for the development of muscle power and coördination.

The best results follow in those cases in which the cause of the paralysis has been a traumatic division of the nerve; less hopeful of complete recovery are those cases due to neuritis, especially when suppurative in character.

The longer the time between the paralysis and the anastomosis the slower and the less complete is apt to be the recovery. In case of traumatic paralysis, anastomosis should be immediate. In interstitial neuritis it is necessary to wait from three to six months for the signs of spontaneous recovery which so often occur. In the suppurative forms operation should be done as soon as the danger of infection of the wound is past, as there is small likelihood of spontaneous recovery.

The condition of the paralyzed muscles is of prognostic importance; the more atrophy, the less hope. Massage and electricity should be used systematically from the onset of the paralysis to keep the muscles in good condition in case either spontaneous regeneration of the nerve occurs or operation becomes necessary.

PRIMARY PYELITIS IN INFANTS.

During the past two years HARTWIG (*Medical Record,* March 19, 1904) observed three cases of primary pyelitis in infants. In all three the general symptoms simulated typhoid fever, and the diagnosis was established only after a careful examination of the urine. The amount of albumin was small, and its turbidity was insignificant, but microscopically it presented all the characteristics of pyelitis, and swarmed with bacteria when entirely fresh.

The duration was about one month in each, until the recovery could be called perfect microscopically; while two weeks in two cases and ten days in one comprised the febrile periods. The fever reached 105° F. in each case and required antipyretic remedies.

The author attributes the recovery of these cases to the use of antiseptics, turpentine, and urotropin. One case developed an abscess under the ear six weeks later, but the others remained well without sequelæ. The temperature was generally highest in the evening. In all doubtful cases of typhoid fever in infants the urine should be examined for primary pyelitis.

TETANUS TREATED BY INJECTION OF ANTITOXIN INTO THE SPINAL THECA.

WALLACE and SARGENT (*Lancet,* March 5, 1904) reports four cases of tetanus treated by the injection of antitetanic serum into the spinal theca. This method was first practiced by von Leyden, who employed two injections of 10 cubic centimeters each in one case, and the patient recovered. Penna records five cases treated in this manner with three recoveries. The injections varied from a total of 100 to 240 cubic centimeters of serum, as much as 60 cubic centimeters being used at one sitting; a corresponding quantity of cerebrospinal fluid always being withdrawn. The three cases that recovered had daily injections, and the symptoms subsided in from five to seventeen days. In the two fatal cases the patients died from pneumonia, but the spasms had ceased and the limbs were relaxed and could be moved. In no instance were any bad effects noticed.

The serum was injected by means of an

antitoxin syringe provided with an especially long needle, introduced between the third and fourth lumbar vertebræ. In no case were any ill effects observed either immediately or at a later period.

The periods of incubation in the writer's cases were respectively three to six, six, nine, and eleven days. Three patients recovered and one died, the fatal case being second in order of severity, both as regards period of incubation and the character of the symptoms.

It is still doubtful if the intradural will show any better results than the subcutaneous method. The lumbar injection is to be preferred to the intracranial.

CONGENITAL OCCLUSION OF THE ESOPHAGUS.

THOMAS (*Lancet,* Feb. 6, 1904) has collected nineteen cases of congenital stenosis of the esophagus. In nearly all of the cases the upper part of the esophagus was found expanded into a large sac formed of its normal membrane and terminating in a rounded shape at different distances from the mouth. In the cases in which the upper end of the esophagus was patent for the greatest extent, the occlusion was one-half inch from the bifurcation of the trachea.

There appear to be two forms of congenital occlusion, one in which the upper and lower portions are united by a fibrous cord, and another (the more common type) in which the lower part opens into the trachea, or into one of the bronchi. In several cases other abnormalities were present, as atresia ani, rectal deficiency, abnormal termination of the rectum, or imperfect development of the pelvis.

In one case in which rectal feeding was adopted the child lived eleven days, but four days seems to be, at most, the longest period any child survived without treatment.

Diagnosis is not difficult. Persistent regurgitation of milk should lead to an examination of the esophagus. The abortive attempt to pass a bougie and the examination with the finger would settle the matter at once, unless the upper pervious portion of the esophagus were unusually long. The condition is not apt to be recognized until the second day after birth.

Gastrostomy offers the best prospects. The opening should be comparatively large and at once firmly united to the skin, so that feeding may be commenced immediately. The selection of food and its administration should be carefully attended to. In view of the fact that in the majority of cases the lower part of the esophagus opens into the trachea, just below the larynx, the writer suggests the possibility of performing a tracheotomy and introducing food into the stomach by this route. A tracheotomy tube would prevent food passing down the trachea, and nourishment might be passed into the esophagus above it.

Only one of the cases reported was operated upon. The child did not recover, but lived fourteen days, the longest time on record.

Rectal feeding has prolonged life in at least one case, and might with advantage accompany other treatment. A careful examination should be made to insure that there is no congenital deficiency of the rectum or other part of the alimentary canal.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

During the past seven years CANTLEY (*Lancet,* March 5, 1904) has seen ten cases of congenital hypertrophic stenosis of the pylorus. In a typical case the symptoms consist of progressive wasting; vomiting, unaccompanied by nausea and characteristic of pyloric obstruction; the absence of bile from the vomit; constipation; clean tongue; sweet breath; a dilated stomach; visible peristalsis; and a palpable pylorus. Palpation of the pylorus is difficult on account of its deep position, and some uncertainty is usually experienced as to whether or not it can be felt. The writer has been able to palpate a tumor in his last five cases. Other tumors in this situation at an early age are very rare, and an enlarged gland, if present, is not as definite and does not give rise to similar symptoms. Gastritis generally can be excluded on account of the clean tongue and sweet breath.

The author cites one atypical case in which the affection was diagnosed from the wasting and vomiting, the dilated stomach, and the palpable pylorus. The obstruction was only partial, however, as

shown by the absence of characteristic vomiting, the presence of a considerable amount of fecal matter in the stools, and by two periods of gain in weight. Operation was not performed in this case, and the child died from marasmus induced by starvation from insufficient food passing through the pylorus. This case demonstrates that the affection can exist apart from the typical symptoms, and that an apparently mild case may induce severe wasting, although food can pass through the pylorus.

The author believes that mild cases may exist, in which the symptoms may be limited to attacks of dyspepsia with occasional attacks of vomiting, and that such cases may terminate in later life from dilatation of the stomach and hypertrophic stenosis of the pylorus. Such cases have been recorded at five years, six years, and eleven years.

Four of the author's last five cases were operated on, and all recovered.

SMALLPOX—RED LIGHT TREATMENT.

NASH (*Lancet,* March 5, 1904) had an opportunity of treating twenty-five cases of smallpox during the epidemic of 1902. Two fatalities were due to hemorrhagic smallpox, but as this type of smallpox is invariably fatal, these two cases have been omitted from the statistics as being uninfluenced by the treatment.

Eleven cases with three deaths were treated in wards lighted by ordinary windows, while in wards lighted by red-paned windows there were twelve cases without a death. In a third series of five cases treated by red light the vesicles became fuller and rounder toward the ninth day, and there exuded a thin, semipuriform fluid, but no actual pus. Secondary fever was quite absent, and the medicinal treatment was confined to about six grains daily of acetozone.

Although the writer thinks that none of the cases would necessarily have been fatal if treated in wards lighted with ordinary daylight, he feels that the suppurative stage was considerably modified and rendered less severe and less dangerous by the beneficial influence of the red rays, or rather by the exclusion of the other elements of light.

NOCTURNAL INCONTINENCE OF URINE —RETRORECTAL SALINE INJECTIONS.

Beneficial results have been obtained from injections of saline solution, not only in cases of intractable sciatica and in neuralgia of the cauda equina, but in nocturnal incontinence of urine.

All the ordinary methods of treatment failing to give relief, PATEL (quoted in *Edinburgh Medical Journal,* March, 1904) injected 200 grammes of the solution into the retrorectal space of a female patient of twenty-five. The following night there was no incontinence; there was, however, on the second night, and a second injection was made. The incontinence disappeared entirely, with no recurrence within six months. After the first injection in a second female patient of twenty, the incontinence disappeared for three days; after the second injection for six days. The third injection (200 grammes) was followed by thirty days' continence; after the fourth injection (200 grammes) there has been no recurrence.

The needle of the syringe is introduced at the tip of the coccyx, or to one side of it, and is passed vertically upward. A finger in the rectum guides the needle as it is passed in, and prevents perforation of the rectal wall. The fluid is slowly introduced. No anesthetic is required.

ADHERENT PREPUCE—REFLEX DISTURBANCES.

Within the last few years SIMON (*British Medical Journal,* March 12, 1904) has seen three cases in which reflex disturbances were due to adherent prepuce or a narrowed urethral meatus.

One of these cases, a boy of eighteen months, suddenly became unable to walk. He dragged one leg and complained of pain in the hip. After every plan had failed the prepuce was found to be long and adherent. The child was circumcised, and recovery was immediate and complete.

Severe intestinal colic in another child, aged fourteen, was found due to the same cause.

A third patient, a boy of three, was treated in the usual manner for night terrors and indigestion before it was discov-

ered that the prepuce was adherent and the meatus narrow. These conditions being treated surgically, there was an immediate and permanent cessation of the symptoms.

CONGENITAL TORTICOLLIS—MANIPULATIVE CORRECTION.

WILSON (quoted in *American Medicine,* March 12, 1904) states that when an unnatural posture of the head in a child under seven years of age is caused by a contracture of the sternocleidomastoid muscle of one side, it may be corrected by forcible manipulations.

The patient is placed on a suitable table in the recumbent position and anesthetized. The operator grasps the head between his hands, and so turns it that the chin will point toward the shoulder of the affected side, rendering the muscle of that side tense. Additional corrective force will usually cause the contracted muscles to elongate. If this does not occur, the operator holds the head in the best possible position, as determined by the previous manipulations, while using forcible massage upon the muscle near its clavicular attachment. When sufficient correction has been obtained, fixation is secured by the application of plaster of Paris with the head in a somewhat overcorrected position. This plaster cap should embrace the head, the neck, and shoulders, with a portion running under the axillas. Three or four weeks is ordinarily sufficient to obtain union of the torn portions of the muscles, when the plaster cap may be removed. Development movements should be instituted to secure coördination of the muscles in their new relations.

WIRE JOINTS.

G. PASCALE (*Riforma Medica,* 1903, xix, No. 48, 50, 51) reports the case of a man whose humeral head was extirpated on account of sarcoma; the shoulder-joint was then reconstructed with platinum wire. Also another case, in which, on account of subluxation of the hip-joint and a badly consolidated fracture of the head of the femur, ankylosis had taken place. The head of the bone was resected and a new hip-joint manufactured from wire. By means of metal loops it is possible to reconstruct a joint which has been deprived altogether of its movements. The loops of wire are perfectly tolerated by the tissues even when the excursions of the movements are large. The wires serve three purposes: They fasten the bones together, thus allowing normal function of the parts by the new joint; they maintain the esthetic outline of the parts, thus favoring muscular function and nutrition; they favor osteogenesis and regeneration of the tissues; through them the new tissues are modeled after the preëxisting type. Platinum is the best metal for the wire, as it is both malleable and resistant; a double wire is to be preferred to a single wire of the same strength and size. The loop should be introduced to stay permanently. The results of such operations to date, although very limited in number, are a strong testimony in their favor.

CANCER OF THE PYLORIC END OF THE STOMACH—RADICAL OPERATIONS.

Forty-one radical operations upon the pyloric end of the stomach—thirty-seven for cancer, four for inveterate ulcer—have been performed in the hands of WM. J. MAYO and his brother, CHARLES H. MAYO (*Annals of Surgery,* March, 1904), thirteen of the operations being by a composite operation, resulting in but one death. There were six deaths in the remaining twenty-eight cases, which were operated upon by various other methods.

The operation comprises: (*a*) Incision and exposure; (*b*) control of hemorrhage; (*c*) closing of the stomach and duodenal stumps; (*d*) reëstablishment of the gastrointestinal canal; (*e*) measures for preventing shock.

The patient's stomach should be cleansed the day before operation. A small amount of liquid nourishment may be given after the lavage, but nothing on the morning of operation. The teeth and mouth should be cleansed.

A small incision is made in the median line, half-way between the ensiform cartilage and the umbilicus; through this two fingers are introduced for exploration. If the condition is inoperable the incision is closed, and the patient so treated that he may spend his last days among his friends as soon as possible.

If operation be decided upon, the small exploratory incision is rapidly enlarged to

four or five inches, and a sufficiency of the gastrohepatic omentum is tied off at once close to the liver. The entire area is now packed off with gauze pads.

By ligating the four blood-vessels supplying the pyloric end of the stomach the operation is rendered practically bloodless. The gastric is doubly tied about one inch below the cardiac orifice, at a point where it joins the lesser curvature, and divided between the ligatures. The superior pyloric is doubly tied and divided. The fingers are passed beneath the pylorus, raising the gastrocolic omentum from the transverse mesocolon; in this way safe ligaturing, behind the pylorus, of the right gastroepiploic artery, or in most cases its parent vessels, is secured. The left gastroepiploic is now tied at an appropriate point, and the necessary amount of gastrocolic omentum doubly tied and cut. In some cases it may be wise to excise the devitalized omentum, especially if drainage is to be used with its attendant possibilities of secondary infection. If drainage is not used it will act as an omental graft and give no trouble. It is important that, in ligating the gastroduodenal vessel and the gastrocolic omentum, the fingers should raise the structures away from the middle colic artery, which runs immediately beneath in the transverse mesocolon. The control of hemorrhage is very similar to the ligation of the four vessels concerned in abdominal hysterectomy, and fully as easy.

The duodenum is doubly clamped and divided between with the actual cautery to prevent inoculation of the cut surfaces with cancer. The duodenal stump should be left one-fourth inch long, and before removing the clamp a running suture of catgut is introduced through the seared stump and tied as the clamp is removed. A purse-string suture of silk or linen, three-quarters of an inch below the stump, enables inversion in a similar manner to the stump of the appendix. A long Kocher holding clamp is now placed from the tied gastric artery at Mikulicz's point of election in an oblique direction, so as to save as much as possible of the greater curvature, to Hartmann's point of election on the greater curvature. The blades of this clamp should be covered with rubber tubing, and the compression should be just sufficient to retain the tissues in its grasp. A second clamp is applied on the tumor side to prevent leakage. The tissues between are severed with the Paquelin cautery, one-quarter of an inch from the holding clamp, and as the tissues are divided several catch forceps are caught on the projecting stump to prevent retraction of some part of the gastric wall from the grasp of the Kocher clamp. The pyloric end of the stomach, with the tumor guarded against leakage by the clamp at each end, is removed. The cauterized stump projecting beyond the Kocher clamp is rapidly sutured with a catgut buttonhole suture, from the greater to the lesser curvature, through all the coats of the stomach, and in the same manner directly back, and tied at the starting point; this prevents hemorrhage as well as leakage. The Kocher clamp is now removed, and any bleeding point is caught and tied. The final suture is now introduced, of silk or linen, made after the right-angle plan of Cushing. It is taken sufficiently far from the catgut suture line to enable easy approximation of the seromuscular layers without tension.

The next step is an independent gastrojejunostomy of the usual type. Either the anterior or posterior method can be used, and the Murphy button or suture operation be performed. If the patient is in good condition and the operation has been completed promptly, the posterior suture method is preferred.

Dissemination of carcinoma by rough handling or allowing infected cells to escape into the wound is not uncommon; hence all sections of the diseased part are made with the actual cautery. Pyogenic infection is prevented by the clamps placed upon each side of the excised stomach, sealing against escape of contents, while the exposed edges beyond the clamp are sterilized by the use of the cautery in making the section. In addition to this the gauze pads are arranged in two rows—an outer deep layer, which is not changed until removed finally, and an inner superficial layer, which is kept constantly renewed. Upon removal of the final gauze pack the entire field is carefully gone over and any little bleeding point checked by ligature. After sponging the surfaces with a moist saline gauze pad, the abdominal incision is closed. In some cases drainage seems wise on account of accidental soiling. This is seldom necessary, but if in doubt, drain, and best with a

cigarette drain placed at the lower angle of the external wound, entirely away from the visceral suture lines. The internal end of the drain should reach to a situation just above the transverse colon, which acts as a dam when the patient is placed in the proper position in bed—head and shoulders elevated. If there be but a limited area to be quarantined, the gauze should be brought out in the most direct manner possible.

As to shock, if the patient's condition is very poor owing to early obstruction, the chief danger comes from the lack of fluids in the body. This should be made up by subcutaneous infusions of saline solution, forty to sixty ounces a day, usually twenty to thirty ounces every twelve hours, for two days previous to the operation. This is continued for several days following operation if necessary. For subcutaneous infusions the ordinary Davidson syringe is preferred. To it is attached an aspirating needle. The hand-bulb enables nice regulation of the inflow. The whole can be boiled, and the infusion given by a nurse as easily as an enema. In debilitated patients very little anesthetic is used, just enough to enable the surgeon to open and close the abdomen. All the visceral work can be done without pain.

An enema of six ounces of coffee is given as soon as the patient is put to bed. If necessary, morphine, strychnine, or like remedies are exhibited.

The after-treatment is simple. The head and shoulders of the patient are raised by four or five pillows. Rectal alimentation is instituted. Hot water is given by mouth after twelve hours, in tablespoonful doses, increased to an ounce every hour. After thirty-six hours the usual liquid foods are begun.

TETANUS TREATED BY LUMBAR INJECTIONS OF ANTITETANIC SERUM.

SICARD (*Bull. de la Soc. Médicale de Paris,* 1903, No. 30) reports three cures of grave cases of tetanus by means of lumbar injections of antitetanic serum. He combines large doses of chloral by rectum with the antitoxin. From 5 to 10 cubic centimeters is injected at varying depths immediately around the seat of injury. From 15 to 20 cubic centimeters is injected in such a manner as to come in direct contact with the peripheral nerve trunks supplying the diseased area. From 15 to 20 cubic centimeters is injected slowly beneath the arachnoid of the lumbar cord at a temperature of from 37° to 38° C. After forty-eight hours all three methods of treatment may be repeated. Relatively large doses of antitetanic serum may be injected into the subarachnoid space (50 cubic centimeters or more within ten to fifteen minutes) without producing any untoward symptoms. In animals this method is more active than subcutaneous injections, but less so than intracerebral.

VOLVULUS OF THE CÆCUM.

FATTIN (*Deutsche Zeitschrift für Chirurgie,* Bd. lxxi, S. 355) adds five more cases of cæcal volvulus to his list, thus making a total of thirty-five reported from Finland during the last few years.

Excessive mobility of the cæcum due to the presence of an ileocæcal mesentery has been noted as a predisposing cause. The patients are all relatively young, being less than forty, and many less than twenty years old. Men are affected oftener than women. Trauma, violent movements, etc., act as exciting causes; sometimes, however, the attack begins in the middle of the night. In many cases constipation is believed to be a factor.

The clinical picture includes suddenness of onset, abdominal pain, vomiting, obstipation, oblique or transverse local meteorism, absence of peristalsis, slight tenderness, chronic course, and late fecal vomiting. Usually several light attacks have preceded the grave attack. Constipation as a rule is not absolute, this affection thus differing from volvulus of other parts of the intestines. A curious succussion splash on shaking palpation has been noticed by the author in a number of cases.

The abdominal pains are influenced by changes in position, and thus the symptoms may be made to disappear entirely. This is an important diagnostic and therapeutic sign. The treatment in every case should be operation.

After the operation the bowels must be moved well. Of eleven patients who were given laxatives only one died. Saline enemata are helpful.

Of fifty-nine patients treated by reduction of the volvulus, twenty-eight (47.54 per cent) recovered; of nine patients treated by resection, only three recovered. Although the results thus far have not been brilliant, the author believes that in the future cæcal volvulus will be classed with those forms of occlusion having a relatively favorable prognosis.

REGENERATION OF THE LIGATED SAPHENOUS VEIN.

LEDDERHOSE (*Deutsche Zeitschrift für Chirurgie,* Bd. lxxi, S. 401) cites his own experience with 100 ligations of the long saphenous vein for varicose veins. He saw repeatedly a recurrence of the condition and could feel thin-walled varices beneath the scars, without being able to tell whether or not the vein had regenerated, or a collateral vein had formed in the varix. In two cases he performed a secondary operation, and after careful dissection of the veins he was able to note that actual regeneration had taken place between the silk ligatures, and which had become absorbed. There was no collateral restitution, as proven by the further fact that no branches arose from the main trunk in that particular part. To prevent regeneration he advises the resection of at least one to two inches of vein between ligatures.

TUBERCULOSIS OF THE ELBOW-JOINT—SURGICAL TREATMENT.

The only rational treatment of tubercular arthritis of the elbow, according to Mosetig-Moorhof, is the removal of all diseased tissue; in even the worst cases operation must be performed, as a useful limb can be given to most of the patients. Resection is his operation of choice, and amputation is resorted to only when a patient in a grave general condition is urgently in need of surgical help. DARMIANOS (*Deutsche Zeitschrift für Chirurgie,* Bd. lxxi, S. 288) published the results of 77 resections and 29 amputations performed by Mosetig-Moorhof between 1892 and 1903.

Lung complications, unless grave, are no contraindication to a resection; if grave, an amputation is the better treatment. Excision is accomplished through a transverse incision over the back of the elbow-joint. The tubercular structures are removed and the joint surface of the bone sawn through until healthy bone is reached. The triceps attachment to the olecranon is preserved. The interosseous spaces must be cleared of all diseased tissue. The cavity, cleansed with formalin solution, is filled with a mixture of iodoform, sesame oil, and fluid spermaceti. The remainder of the olecranon with the triceps is brought down and fastened to the ulna with silver wire. Drainage is arranged superficially. The arm is put up in a starch dressing and carried at an angle of 120 degrees. The first dressing is on the eighth day. By the tenth day active and passive movements, massage, and electricity are begun. No flail joints nor later subluxations have been observed in these cases, and the results were much more favorable than in those treated by conservative measures.

GASTRIC TETANY.

CUNNINGHAM (*Annals of Surgery,* April, 1904) states that gastric tetany is usually dependent upon pyloric stenosis, subsequent dilatation and hypertrophy of the stomach, and associated stasis and hyperchlorhydria. The pyloric obstruction is usually benign, due to cicatrization of an ulcer, and gives rise to a series of tetanic contractions which are fairly characteristic. The obstruction may be malignant, or may be dependent upon pressure from other organs. The attack of tetany most commonly follows severe vomiting, or less frequently after emptying and lavage of the stomach.

Usually the first symptom is pricking and numbness in the hands. This early symptom, as a rule, is of so little inconvenience to the patient that it is frequently overlooked, unless the surgeon puts the question directly. Later in the disease there may be an aura of fatigue, and the attack is apt to be preceded by severe vomiting.

Tetanic contractions appear in the hands, the fingers being flexed at the metacarpophalangeal joint, and the outer phalanx usually extended. The thumb is adducted into the palm of the hand. The wrists are either strongly flexed, or less frequently extended. The lower arm is flexed at the elbow and rotated across the

chest. The legs are flexed at the hips and knees; the ankles and toes are flexed or extended. The face occasionally shows trismus, with the corners of the mouth considerably drawn out. Transitory blindness has been recorded by Küssmaul and Bouveret. The patient may remain conscious and quiet, motor speech being involved; or delirious, with absence of sensory speech. The muscles of the neck, chest, back, and abdomen are less commonly involved. The limbs are sometimes tense and edematous, and the patient may be cyanotic.

These attacks last a few minutes, occasionally or frequently repeated, or may even continue for days and weeks. These prolonged cases are almost invariably fatal.

The groups of muscles usually involved are in the order above stated.

Certain symptoms—Trousseau's, Chvostek's, Erb's, Hoffmann's—are usually present. In Trousseau's symptom, as the attack subsides, enough pressure over the principal nerve-trunk or blood-vessels to impede the venous or arterial circulation will reproduce the paroxysm.

In Chvostek's symptom a slight tap over the principal nerve—for example, the facial—will throw its muscles of distribution into spastic contractions, giving evidence of the increase of the mechanical excitability of the motor nerves.

In Erb's symptom a faradic current applied over the nerves and muscles shows great increase of electrical irritation.

In Hoffmann's symptom slight pressure over the sensory nerves gives evidence of their increased excitability, as shown by paresthesia in the region of their distribution.

After the attack has passed off great pain is experienced in the parts involved, and massage and passive motions are very grateful to the patient.

Tresilian reports a case in which blindness lasted for three days, associated with aphasia for one day. These men record the pupils as widely dilated and not reacting to light during the attack, while Bouveret and Devic record the pupils as usually contracted.

Albuminuria has been an almost constant symptom in the reported cases of gastric tetany, although post-mortem findings have failed to give evidence of renal disorder. The albuminuria is probably due to the elimination of concentrated toxic elements, and cannot in any way be considered an etiological factor, as renal symptoms have been consistently absent. Diminution in the amount of urine has been almost constant, and the urine has been invariably concentrated, with evidences of lessened metabolism.

Post-mortem and operative examinations show ulcers in the various stages of cicatrization, most commonly in the duodenum, less frequently both in the duodenum and stomach.

Statistics show that the prognosis is very grave. The mortality is high, and recovery without operation comparatively rare.

The fatality of the recorded cases is startling. Series of cases by different authorities are as follows: Frankl-Hochwart, eleven cases, ten died; Bouveret and Devic, twenty-three cases, eighteen deaths; Albu, forty cases, thirty-one died; Riegal, twenty-seven cases, sixteen died. The mortality, figured on these cases and as stated by other authorities, is nearly eighty per cent.

The etiology of the obstruction, although the primary cause, plays a minor part in the gravity of the prognosis.

It is the rule that death occurs some time after the tetanic seizures have become well developed by failure of the patient to respond to treatment. However, Marten and Trevelyan each report a case which proved fatal within a few hours of the first attack. Besides the serious danger of the patient's dying during the actual attack of tetany, there is always the probability of its recurrence and certainty of ultimate death. The surgical cases show a mortality of 37.5 per cent.

At the onset of an attack of gastric tetany the organ should be emptied by an emetic, or, if possible, the stomach-tube. Even after vomiting, which frequently precedes the attack, considerable putrefying material will still remain in the stomach. Trousseau found that ice applied over the spine was beneficial in some cases. Others advocate placing the patient in a tepid bath just as soon as the spasms begin, and if the case is not chronic, to continue the baths three or four times daily, at a temperature of 30° C. Sedatives, usually the bromides, and also morphine

are to be administered during the attack; and if the paroxysms occur frequently, sedatives are to be continued with regularity. It is a question, however, if any drug diminishes the frequency or the violence of the spasms. It may be found an advantage to keep the patient on rectal feedings as long as the vomiting persists, and lavage should be carried on in those cases in which it is possible.

Between the attacks thorough lavage is to be practiced often enough to remove the stomach's residuum and to prevent putrefaction. A small, easily digested diet should be given, and strict attention must be paid to keeping the bowels open. Also the general health and hygienic surroundings of the patient must receive careful attention.

Medical treatment undoubtedly does much to aid the patient through the immediate attack, but while the symptoms are relieved the patient is still an invalid, with the chances of an early recurrence and unfavorable prognosis regarding life constantly before him.

The pyloric obstruction, if sufficient to cause dilatation, motor insufficiency, and stasis, and to produce gastric tetany, is too serious a condition to be overcome by medical treatment, and operative interference is necessary to establish a sufficient outlet of the stomach into the intestines.

Gastroenterostomy, pylorectomy, and pyloroplasty are indicated. In view of the statistics of Robson, Mayo, and Munro regarding these operations in benign cases, the procedures in themselves are shown to be accompanied by a surprisingly small mortality.

ESOPHAGOSCOPY.

STARK (*Münchener medicinische Wochenschrift,* 1904, Bd. li, No. 6) employs the esophagoscope with the patient in the lateral reclining position. With the patient in the sitting posture, diffuse dilatations and dilatations above strictures cannot be examined at all, and mucus obstructs the field of vision. He anesthetizes the pharynx, larynx, and upper part of the esophagus with a 10-per-cent solution of cocaine or a 3-per-cent solution of eucaine. The patient is placed in a lateral position with the head bent slightly backward and the tube is inserted while the patient performs swallowing movements. Hyperextension of the head produces a flattening of the esophagus against the vertebral column and renders the introduction of the tube more difficult. Ordinarily the examination is not hard, and is very helpful in the diagnosis of esophageal disease.

His list of examinations includes 17 carcinomas, 3 cicatricial stenoses due to caustics, 2 foreign bodies, 7 dilatations of different types, 6 neuroses, 1 inflammation, and 10 cases in which no diagnosis could be made.

FURUNCLES—ABORTIVE TREATMENT.

GALLOIS and COURCOUX (*La Presse Médicale,* Feb. 17, 1904) employ a solution consisting of 4 grammes of iodine to 10 grammes of acetone for the abortive treatment of furuncles. The nodules are touched with an applicator carrying cotton saturated with the iodine solution. Lesions which have not suppurated, and even those which contain a drop or two of pus superficially, are aborted within twenty-four hours. Rarely a second application may be required. The solution is more caustic than the tincture and must be used with greater care. In an open wound it causes severe pain and may produce symptoms of iodism.

DIFFERENTIATION OF THE LOOPS OF THE SMALL INTESTINE.

The different segments of small intestine resemble one another so closely that during a laparotomy it is difficult to decide whether any individual loop is from the neighborhood of the cæcum, the duodenojejunal junction, or elsewhere. This problem has been solved practically by BERT and LAROYENNE (*Lyon Médical,* Feb. 15, 1904) in the following manner: The valvulæ conniventes decrease in size and number from their origin to their termination. In the neighborhood of the cæcum they are small and insignificant, while in the neighborhood of the duodenum they are large and well developed. The valvulæ conniventes can be felt by external palpation through the coats of the intestines. If a loop of intestine is taken between the fingers of the left hand, and stroked along its length with the index-finger and thumb of the right hand, the relief formed by the valvulæ can be mad

out readily. By exploring the different regions of the intestines, and finding the valvulæ strongly, moderately, or slightly developed, it is possible to state whether a given loop is far removed from or close to the origin of the small intestine. The authors have verified these deductions by numerous observations on the cadaver and on the living individual during abdominal operations.

In the presence of a strongly distended loop of gut which cannot be palpated, the approximate topography of the intestine may be determined by the relative frequency of the valvulæ as shown by the translucency of the gut. This can be done on the ballooned intestine of the cadaver. As the large intestine does not possess any valvulæ conniventes, their presence will differentiate the large from the small intestine in connection with other signs. This simple procedure of investigation apparently has not been recognized before.

Reviews.

ADOLESCENCE: ITS PSYCHOLOGY AND ITS RELATIONS TO PHYSIOLOGY, ANTHROPOLOGY, SOCIOLOGY, SEX, CRIME, RELIGION, AND EDUCATION. By G. Stanley Hall, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. In Two Volumes.
New York: D. Appleton & Co., 1904.

It takes but a cursory examination of the volumes before us to reveal the fact that both in substance and method of treatment they differ radically from ordinary works upon psychology. Instead we find an exhaustive study of the biology of adolescence, the subject being treated in an explanatory relation to psychic evolution. The author has endowed psychology—a science which medical men have heretofore regarded with as much interest, or rather indifference, as they have the older metaphysics—with a natural human interest. He has transformed the arid field of speculation, time reaction and fatigue experiments into a warm, living organism, throbbing with life, and in whose blood-stream are found a thousand new potentialities. As the author has truly stated in his preface, the genetic ideas of the soul, which pervade his work, are new in both matter and method, and if true they mark an evolution into the psychic field of the utmost importance. "Although most of even his ablest philosophical contemporaries, both American and European, must regard all such conceptions much as Agassiz did Darwinism, he believes that they open up the only possible line of advance for psychic studies, if they are ever to escape from their present dishonorable captivity to epistemology, which has to-day all the aridity, unprogressiveness, and barrenness of Greek sophism and medieval scholasticism, without standing, as did these, in vital relations to the problems of their age."

The point of view from which the author approaches the subject is the following: He holds that the child and the race are each keys to the other. Just as in the human embryo can be traced the various stages through which the ancestors of man must have passed through the process of the evolution of the species, so the child in its development repeats the various stages of the evolution of the race from primitive savage to civilized man. It is seen at a glance therefore that the author approaches the subject from a strictly scientific and biologic point of view, a point of view which is not only, as he claims, new, but which is revolutionary and opens up numerous avenues of investigation of the utmost importance. Concerning this the author says: "Realizing the limitations and qualifications of the recapitulation theory in the biologic field, I am now convinced that its psychogenetic applications have a method of their own, and although the time has not yet come when any formulation of these can have much value, I have done the best I could with each instance as it arose. Along with the sense of the immense importance of further coordinating childhood and youth with the development of the race, has grown the conviction that only here can we hope to find true forms against the tendencies of precocity in home, school, church, and civilization generally, and also to establish criteria by which to both diagnose and measure arrest and retardation in the individual and the race. While individuals differ widely in not only the age but the sequence of the stages of repetition of racial history, a knowledge of nascent stages and the aggregate interests of different ages of life is the best safeguard against very many of the

prevalent errors of education and of life." Surely no subject is of greater importance than the education of the children and the youth of a nation, and that the present methods are often grossly defective and many times out of keeping with the capabilities and tendencies of the child at given stages of its life history there can be no question. Certainly any study that will give us definite criteria for quality, quantity, and manner of instruction and training is of incalculable value.

The author takes up his subject somewhat as follows: The first three chapters deal with growth, height and weight, growth of parts and organs, and growth of motor power and function. The space of a review is not sufficient to permit of more than a cursory glance into the subject-matter of these interesting chapters. The first, for instance, treats of individual growth as recapitulating the history of the race, and is based upon copious statistics and references to the works of numerous authors. The most interesting subject, the change of proportions in growth, is considered in Chapter II, which is replete with facts morphologic, physiologic, ethnologic, and pathologic, placed in new and suggestive relationships. In Chapter III the educational value and importance of muscle culture for the development of mind and morals, etc., is considered. Industrial training, manual training, gymnastics, play and sport, are systematically and thoroughly treated.

Next the subject of diseases of the body and mind in adolescence is taken up. In treating of the diseases of the body the author adduces a host of interesting facts, showing the increased liability of the organism to disease at the time of adolescence, besides numerous facts and citations in regard to the various diseases met with at this period of life. Unfortunately the matter is not systematically arranged, so that generalizations other than the first stated are hardly possible, nor indeed does the author formulate any. The part dealing with nervous and mental diseases, while interesting and highly creditable, is also too unsystematic and too general to be satisfactory. Conclusions, summaries, and analogies are not stated, nor is it possible for the reader to make logical or useful inferences from the material as presented. It is to be regretted that the writer did not here associate with himself some competent neurologist and alienist.

Juvenile faults, immorality, and crimes are next considered, a subject which is not only of psychological but also of medico-legal interest. The subject of sexual development is then taken up, and is dealt with not only biologically, but also from a severely practical standpoint. After discussing in detail the development of the male and female sexual organs and the effects of castration, the author takes up the subject of masturbation, to which, the reviewer believes, he devotes too much space and attention. While it is perhaps true that the practice is wide-spread, we doubt very much whether the testimony of physicians of large experience will bear out the claims either as to its almost universal prevalence, or as to the frequency of diseases attributable to its practice. The individual experience of physicians in these matters would seem to be a more satisfactory source of information than defective and vulnerable statistics. Besides the question of practical value hinges about *confirmed* masturbators. Here clinical experience is unequivocally to the effect that masturbation is a stigma of the defectives and the deviates—of those morphologically arrested and degenerate, in whom it is a symptom of general lessened psychic inhibition. That the truths with regard to sexual hygiene should be brought closely home to every boy goes without saying, and the injury and degradation of the practice should be clearly pointed out. We should, however, bear in mind that in the healthy boy there is not only the inhibition derived from the effort of the will to withstand temptation, but what is of much greater value, that general physiological inhibition which is derived from the games, sports, and the countless other active out-of-door interests of boyhood, which impel the boy to the free expenditure of his energies through normal, healthy channels. The obvious inference as to prophylaxis needs no comment. Such prophylaxis is, however, let it be said, of infinitely greater value than preachings and scoldings or the demoralization of accusations or confessions.

In the chapter on Periodicity the author discusses minutely menstruation. This function, however, he strangely misinterprets. Nowhere does he point out

the physiological truism that the occurrence of menstruation expresses merely the failure of impregnation and the getting rid of structures—by the shedding of the mucous membrane and the attendant flow—which would have formed the decidua had pregnancy taken place. In discussing the subject, furthermore, he weaves into it an astonishing amount of sentiment, almost hysterical in its extravagance. Says the author: "She is now at the very top of her condition, most brilliant, beautiful, attractive to men, and most attracted to them. Before, she needed the greatest tenderness, delicacy, and sympathy, but gradually, as the month advances, she becomes more independent and often a little less dominated by her affections. These processional changes in a strong and healthy nature have something of the magnificence and awfulness of Nature's primitive revelation. During just the time when savages isolate woman and call her unclean, she is really in her fullest flower and glory, and she must begin by reënforcing her self-respect at this period. She must have freedom to control the entire environment, and thus, perhaps, to some extent, the time of her month. . . . . The nerves, feelings, and the muscles need a regimen varying in individual women more, perhaps, than the whole range of male variability. In this women differ from each other more than they differ from man. Into this field I cannot enter; but happy she who, at twenty-five, has really achieved freedom, intelligence, and true self-knowledge. During the first few days she is introverted to strange sensations almost ecstatically charming. The volume of her emotional life is greatest, as is its depth and range. Then actually, though unconsciously, if entirely healthful, she is more attractive to man; and as the wave of this great cosmic pulse which makes her live on a slope passes, her voice, her eye, complexion, circulation, and her very dreams are more brilliant. She feels her womanhood and glories in it like a goddess. Her toilet is never so detailed, even where it is most hidden to any other eye than her own. The flow itself has been a pleasure, and the end of it is a slight shock. The instinct to conceal is a part of female coyness, which is directed only toward others, and she is most of all reserved toward any chosen one. In the earliest stirrings of the adolescent ferment she has first dreamed of some ideal of manhood and is altruistic, and only later comes the conception of selfhood." Much more might be cited of what to the physician sounds like arrant nonsense. Physicians come into close touch with large numbers of women, both those neuropathic and others psychically normal, and we submit that the scene here depicted is out of keeping with all experience.

Chapter VIII deals with the subject of adolescence in literature, biography, and history, and is most valuable and of especial significance to the student of psychiatry. Chapter X deals with the evolution and the feelings and instincts of normal adolescence, and is especially interesting. In it the author expounds and defines at length his point of view—that is, his evolutionary concept of the soul. The subject is treated in a masterly fashion from a biologic standpoint. The other chapters, which deal with "adolescent life, adolescent feeling toward nature, pubic initiation, classic ideals and customs and church confirmation, adolescent psychology of conversion, social instincts and institutions, intellectual development and education, and adolescent girls and their education," are all of them pregnant with thought and invite but little adverse criticism. Chapter XVIII deals with ethnic psychology and pedagogy, or adolescent races and their treatment. The savage is here considered in the light of an adult child. The psychic lives, extinction, and the barbarous treatment of primitive races by civilized man are discussed in detail. The author here again evinces an amount of feeling which is strangely out of place in a purely scientific treatise. Certainly not every one will subscribe to the sentiment that to "know a savage is to love him." Furthermore the very title of the chapter implies an erroneous assumption. Savage races are not necessarily adolescent. Many of them have long since reached the zenith of their evolution, while many more have long past it. Savage races may indeed be spoken of more truly as "arrested" or "retarded" races than as adolescent. Many have by their evolution into their own special channel attained such a degree of fixity that a higher or rather a different culture cannot be imposed upon them. In order that evolution should be progressive the organism

must retain its plasticity, its power of constant readaptation to changing conditions in its environment, and this is a quality which the great mass of savages surely do not possess. Their very extinction is a proof of this. From the sentimental point of view it is, of course, deplorable that in the struggle for existence a superior race should destroy an inferior one, and yet this is the law of nature. Any attempt to interfere with the struggle for existence, no matter how barbarous and cruel the law may be in its operation, would be in the long run disastrous. If, let us ask, as has been maintained by some writers, the fall of the Dutch Republics in South Africa means the eventual domination of this great region by the negro—means its conversion into a vast San Domingo—is the world to be congratulated upon such an outcome? We think not. Again, the only practicable plan for the preservation of the inferior races would be that of miscegenation, a result which would be no less disastrous for posterity.

The work abounds with an enormous number of citations and references, and is a veritable monument of painstaking bibliographical research. Indeed, the references are of great value to those interested in allied fields. The style of the author is clear and most attractive, though it is marred by the rather frequent use of obsolete or newly coined words (of Greek origin), whose places would have been better taken by simple English words in common use. It is also to be regretted that the author has not summarized the results of his labors and pointed out, as far as possible, the *relations* between the phylogenetic and ontogenetic psychic evolution. That there is such a relation is extremely probable, but we close the volumes with the feeling that the author has failed to prove his proposition, and the absence of such a summary is to say the least disappointing. One would expect that throughout a work undertaken from such an original point of view the author's propositions would pervade its entirety and be evident upon its every page, as in Darwin's Origin of Species. This is distinctly not the case. Perhaps it is due to the composite make-up of many of the chapters that the propositions stated in the preface, and here and there coming to the surface in the book, fail of their *q. e. d.* We believe that two faults of the book are especially in evidence: First, its general plan, in which no special principle appears to have been followed, and into which the parallel consideration of like phenomena in child and savage has but sparsely entered. Secondly, we feel that the book has been marred by the excessive introduction of referred literature into its text; this has both obscured the general meaning of the author and has added unduly to the bulk of the treatise.

The above criticisms, be it remembered, are not intended to detract from a work which is truly great—great because of its conception, great because of its revolutionary character and because of its application of the principle of evolution in a phylogenetic and ontogenetic manner. It is a book, moreover, which should be carefully read by physicians, and it should appeal strongly to educators, parents, and others who have the responsibility of young people upon their shoulders. It is rather remarkable that, possessed of such distinguished ability and originality, this should be the author's first book. We believe he is incorrect when he says that logically his work upon psychology should have been published first. Certainly the psychology of development precedes adult psychology, and the very fact that this work has appeared first is in keeping with this truth. F. X. D.

THE ALL-AROUND SPECIALIST. By J. R. McOscar, M.D.
Philadelphia: The J. B. Lippincott Co., 1904.

In the preface we are told that the design of its author is to place in the hands of the medical profession a number of useful facts not usually in every doctor's possession. The author presents the reader with formulæ which he has collected during several years of investigation, and also describes the treatment which is resorted to, at least on the part of many irregular practitioners, in the management of malignant growths, alcoholism, hernia, etc., etc. Doubtless when the second edition is issued many minor mistakes which appear in the present edition will be eradicated.

While the book can scarcely be considered an exhaustive treatise on treatment, it contains a multitude of practical points, and we have no doubt that it will become very popular with a large number

of practitioners, particularly those who reside in country districts. While its title is rather contradictory, it nevertheless indicates very well the scope of the volume, since it is designed to aid the practitioner in treating almost every malady which is commonly referred to a specialist. This is doubtless advantageous to the doctor, even if it is not advantageous to the patient.

GRAVES'S DISEASE, WITH AND WITHOUT EXOPHTHALMIC GOITRE. By W. H. Thomson, M.D., LL.D.
New York: William Wood & Co., 1904.

The object of this monograph by Dr. Thomson, who, it will be remembered, was at one time Professor of the Practice of Medicine in the New York University, is to emphasize the fact that the constitutional and general derangements which are characteristic of Graves's disease constitute the disease and not the condition of the thyroid gland. It will be seen at once that this view is diametrically opposed to that which has been generally accepted within the last few years. The author cites a large number of cases which he thinks go to prove the correctness of his position in the matter. A description is given of no less than forty-two patients with exophthalmic goitre and twenty-eight without goitre. The concluding chapters deal with the pathology, the treatment, and the surgical treatment of this interesting and obscure affection. Although Dr. Thomson cleverly supports the proposition which he puts forward, we cannot help thinking that he will find it difficult to convince his professional brethren of the correctness of his position.

RADIOACTIVITY. By Frederick Soddy, M.D. Illustrated.
London: The Electrician Printing and Publishing Co., Limited, 1904.

Mr. Soddy, who is the lecturer on Physical Chemistry and Radioactivity in the University of Glasgow, is already well known as a writer upon this exceedingly interesting subject. The object of his book is to give to students, and others interested in this subject, a connected account of the main arguments and chief experimental data by which our present information has been achieved. An interesting description is given of the discovery by Becquerel of uranium and of Madame Curie's discovery of radium. The chapters of the book deal, first, with the phenomena of radiation, then with radioactive elements, the methods of measuring radioactivity, the Alpha, Beta, and Gamma rays, and then with the various radioactive substances themselves. The final chapters deal with the energy of radioactive changes. The last chapter is entitled "Anticipation," and therefore we would expect that it would inform us as to the discoveries which the author thinks may be made in the future in regard to these substances. As a matter of fact, however, it contains little prophecy, and in its fourth section harks back so far as to discuss the age of the earth.

Some time ago we reviewed a much smaller book than this, by Mr. Hammer, which was devoted to the consideration of various radioactive substances. The present book is a very much more scientific and complete treatise, and will doubtless be read with interest by all those who are engaged in the employment of these powerful but as yet somewhat "unknown quantities."

THE SELF-CURE OF CONSUMPTION. By C. H. S. Davis, M.D.
New York: E. B. Treat & Co., 1904.

In the fifteen chapters which compose this little volume of less than 200 pages, its author endeavors to show us how consumption can be treated without drugs, and largely by the efforts of the patient himself. Physicians are coming to understand more and more that medicinal substances are by no means as valuable in the treatment of consumption as is fresh air and moderate exercise combined with an abundance of sunshine. If Dr. Davis's little book can aid in the still further dissemination of these modern and valuable views, it will have done humanity a valuable service.

ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS. By Dr. Toby Cohn. Translated from the Second German Edition, and Edited by Francis A. Scratchley.
New York and London: The Funk & Wagnalls Co., 1904.

This is a small book devoted to the subject described in its title, and is well qualified to fulfil the objects of its existence. Indeed, it is one of the best, if not

the best, small manual on Electro-therapeutics which we have had the privilege of seeing for a considerable time. The illustrations clearly show how many electro-therapeutic procedures should be carried out. To those of our readers who wish a brief and yet complete consideration of the measures which are employed in the cure of disease by electricity we can cordially commend it. A novel method of showing the motor points in the muscles as they appear on the surface of the body is the use of illustrations of the muscles in position, and superimposed on thin paper is a diagram meant to illustrate the superficial anatomy. To those who are beginning to use electricity for the purpose of exercising muscles and improving their nutrition, the book will undoubtedly prove of considerable value.

A MANUAL OF MATERIA MEDICA AND PHARMACY. By E. S. Muir, Ph.G., V.M.D.
Philadelphia: The F. A. Davis Co., 1904.

Although this book does not contain 200 pages, the title-page tells us that it is specially designed for the use of practitioners and medical, pharmaceutical, dental, and veterinary students. It is manifest, therefore, that its object is a large one, and that the opportunities are correspondingly small for describing fully the botanical, physiological, and therapeutical relationships of the drugs which it contains. The text is arranged alphabetically, and the amount of therapeutic information which is given is exceedingly limited. Indeed, its title indicates that its design is chiefly to consider the materia medica and pharmaceutical side of the substances under discussion. We have no doubt that the book will prove of great value to those who are under Dr. Muir's instruction, but we doubt if it will prove popular with other students who may not be so fortunately situated.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES. By Richard C. Cabot, M.D. Fifth Edition.
New York: William Wood & Co., 1904.

That the fifth edition of a book devoted solely to the examination of the blood should have been called for within a short space of time after the publication of the first edition is creditable alike to the author and to the profession which has so speedily learned that hematology is an important part of clinical investigation. Dr. Cabot's book has come to be one of the standards in the literature of disorders of the blood, and notwithstanding the fact that there are on the market at the present time other eminently satisfactory books, it bids fair to remain one of the leaders. The book contains the results of a large amount of clinical investigation, based chiefly upon statistical data. Indeed, it may be criticized because of the great amount of statistical information which it contains, which is perhaps not well balanced by opinions which might be drawn by a careful observer from a smaller number of cases.

Some of the plates are most excellent; indeed, we have never seen one so good as Plate I in its illustration of eosinophiles and eosinophilic myelocytes. On the other hand, some of the plates, which were present in earlier editions, seem to us not up to the standard of the rest of the book, although they illustrate the facts stated in the text, as, for example, Plate II and Plate III.

In that part of the volume which is devoted to a consideration of the parasites of the blood, we find excellent illustrations of the malarial organism, but we are somewhat surprised to note that Henry's illustrations of Filaria are not credited to that clinical observer. These minor criticisms emphasize the fact that major ones cannot be made.

If any reader of the THERAPEUTIC GAZETTE desires to obtain a most excellent book which will guide him in the clinical examination of the blood, and which will give him information in regard to the work of others, he may purchase Cabot's work with the assurance that he is getting something well worthy of his confidence.

MEMBRANOUS CATARRH OF THE INTESTINES. By Dr. Carl von Noorden. Edited by Boardman Read, M.D., New York.
New York: E. B. Treat & Co., 1903.

This is a monograph covering sixty-four pages devoted to a consideration of this quite frequent condition. Von Noorden believes that the condition is curable in a large proportion of cases. After discussing his ideas concerning its etiology and pathology, he devotes a

very considerable number of his pages to a discussion of the treatment which he employs. Von Noorden's reputation as a careful clinician is so high that anything he says in clinical medicine must be regarded with respect, and to those who are interested in this subject we can heartily commend this little volume.

MEDICAL DIAGNOSIS. A Handbook for Physicians and Students. By Dr. Wilhelm von Leube. Translated from the Sixth German Edition, with Annotations by Julius L. Salinger, M.D. Copiously Illustrated.
New York: D. Appleton & Co., 1904.

To those of our readers who are familiar with German medical literature, this work in its original language is probably familiar. It is an exhaustive and complete manual of diagnosis, in many respects resembling a work upon the practice of medicine. Unlike many volumes of its class, its opening pages deal with diseases of the circulatory and respiratory apparatus, and its closing pages contain a discussion of the important symptoms and the diagnosis of the various infectious diseases. Amongst the chapters on these diseases the translator has in several instances introduced articles dealing with maladies not considered in the original. We have looked through the pages of this book with a good deal of interest to determine whether the latest points in internal medicine have been included, and have been surprised to find how completely it has been brought up to date, even to the discussion of the recent work of Guarniera upon the *cytoryctes variolæ*. In the chapter devoted to gastric ulcer, a careful consideration of this condition is given, and it is pointed out that the intensity of the gastric pain depends in a great number of cases upon the posture of the patient, and is increased if she lies upon her right side.

We can cordially recommend this book as a complete and valuable work of reference.

IMMUNE SERA. By Prof. A. Wassermann. Translated by Charles Boldouan, M.D.
New York: John Wiley & Sons, 1904.

This small book of 77 pages contains a description of our recent knowledge concerning the blood and its serum, particularly in connection with hemolysins, cytotoxins, and precipitins. Its opening pages describe the researches of Belfanti and Carbone, and of Ehrlich and Morganroth, and it explains the theory of the manner in which antitoxins do good. It is the best description of this new branch of medical science in a brief form which we have seen. In the next edition we hope that the translator will adhere to a definite nomenclature. This subject is rendered much more difficult than need be by a confusion of terms. As the text goes from one advance to another, it would be better if it adhered to a single nomenclature rather than the employment of interchangeable terms.

Doubtless many of our readers are anxious to become more familiar with this exceedingly important, though very technical, side of medical investigation, since in all probability our conception of many of the infectious diseases and of therapeutic problems will in the future depend upon an understanding of these facts.

OPHTHALMOLOGICAL ANATOMY, WITH SOME ILLUSTRATIVE CASES. By J. Herbert Fisher, M.B., B.S., F.R.C.S.
London: Hodder & Stoughton, 1904.

Dr. Fisher is so well and favorably known for numerous excellent contributions to ophthalmological literature that it gives much pleasure to make reference to the useful volume which he has published on ophthalmological anatomy. The book is divided into two main portions, the first pertaining to anatomy and the second to a number of illustrative cases. In the first part there is a satisfactory presentation of such knowledge as the ophthalmic student may require in regard to the visual pathways, center for ocular movements, cranial nerves, cervical sympathetic, the ocular movements and muscles, the eyelid and lacrimal apparatus, the ophthalmic blood-vessels and intracranial sinuses, the orbit and its surrounding air cells.

Among the illustrative cases we notice interesting accounts of bitemporal hemianopsia, lesions of the corpora quadrigemina, paralysis of the cervical sympathetic, and various types of sinus disease, with one account of septic thrombosis of the cavernous sinus. Dr. Fisher has not thought it important to place many diagrams in his book, and for the most part those in the anatomical portion, at least,

are borrowed from standard works. It would seem to the reviewer that all of them might be a little more artistic, and some of them, notably those in connection with the ocular movements and muscles, especially on page 71, a little more accurate. However, the majority of them, borrowed and duly acknowledged, serve their purpose very well. According to the author, Meynert's conclusion as to the course of the pupilary fibers is the most simple and the most easily understood. It is probable that the book was written and in print before the most recent investigations with reference to the pupilary pathways were published, particularly those elaborated by Bach; otherwise they doubtless would have found place. Altogether the book is a most satisfactory one and cannot fail to be of use to a student of this subject, and it gives the reviewer much pleasure to commend it to the favorable notice of his colleagues.

G. E. DE S.

DISEASES OF THE INTESTINES. By Dr. I. Boas. Second Revised and Enlarged American Edition. Translated by Seymour Basch, M.D. Illustrated.
New York: D. Appleton & Co., 1904.

When the first American edition of this book appeared we referred to it in terms of praise. The second edition possesses all the advantages of the first, and is benefited by careful revision on the part of the author and translator. The book is one which may be considered an exhaustive treatise upon this subject, for it contains nearly 600 pages, and the author not only expresses his own views but quotes freely from medical literature, closing each chapter with a bibliography. It is interesting to note that Dr. Boas still adheres to the terms "typhlitis" and "perityphlitis." We are glad to note that he points out the difference between simple appendicitis and the suppurative and perforative forms, and emphasizes the fact that the value of statistics in determining the good obtained from one or other method of treatment is extremely doubtful. He believes that simple catarrhal appendicitis does not necessarily require surgical interference, and agrees with the rule laid down by Rotter that if despite proper internal treatment the fever shows no tendency to subside, or rises after the third day, or if, after a slight remission, the temperature on the fifth day is distinctly febrile, operation should not be delayed. In a note added to this chapter by the translator, we find American views in regard to this matter thoroughly discussed, the translator evidently taking sides with Willy Meyer, who points out that the first attack is not the first pathological symptom, but rather the first explosion. The chapters on Treatment are not as full as they might be in some instances, but as a rule are adequate. The American edition of Dr. Boas's work fully equals, if it does not exceed, in value any other volume upon this subject.

THE EXTRA PHARMACOPŒIA. By Martindale and Westcott. Eleventh Edition.
London: H. K. Lewis, 1904.

English physicians are as familiar with this volume as American druggists are with the United States Pharmacopœia. It is a small duodecimo, a little too thick to be carried in the pocket, which not only contains a brief description of the therapeutics and characteristics of official drugs, but also of many unofficial substances. Its closing pages are devoted to a list of drugs of secondary importance, to vaccine and antitoxin, to organotherapy, urinary tests, the various stains commonly employed in the clinical laboratory, culture media, and surgical dressings. There is also a therapeutic index of doses. It would be hard to find another book so small which contains half as much information. We have no doubt that it will attain popularity abroad, and that many copies of it will be used in this country.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. Vol. II, June, 1904.
Philadelphia: Lea Brothers & Co., 1904.

The articles in this volume deal with the surgery of the abdomen, including hernia, gynecology, diseases of the blood, dietetic and metabolic diseases; diseases of the spleen, thyroid gland and lymphatic system; and ophthalmology. Those who are familiar with this publication in past years will look forward with pleasure to the perusal of the first article, upon the Surgery of the Abdomen, by Dr. William

B. Coley. Dr. Coley not only brings to the writing of this article a clear conception of the opinions of other surgeons, but his position as Surgeon to the Hospital for the Ruptured and Crippled in New York gives him extraordinary opportunities to study matters of this kind, and he is therefore enabled to imprint upon his article a distinct personal character. Wherever necessary his article is freely illustrated in order to make operative procedures easily understood. This article consumes the first 126 pages. In the article upon Gynecology which follows, by Dr. John G. Clark, we find that Dr. Clark continues his study of Cancer of the Uterus in the more recent views of the last twelve months concerning this condition. Fibroid tumors and their operative removal are also considered, as are perforations and infections of the uterus. An interesting part of this chapter is that which is devoted to pelvic infection, and the relation of gonorrhea thereto, together with a consideration of the best method of treating gonorrhea in the female. Something is also said of the diseases of the female urinary system and of diseases of the vagina and vulva. The third article, that upon Diseases of the Blood, the Lymphatic Glands, and Metabolic Diseases, by Dr. Alfred Stengel, not only contains all that is recent in regard to the investigations of blood changes in disease, but deals with such maladies as rheumatoid arthritis, gout, diabetes, and infantile scurvy. The concluding article by Dr. Jackson on Ophthalmology is not designed to be an exhaustive consideration of this subject prepared for opththalmologists, but rather a description, or epitome, of the latest methods of treating diseases of the eye prepared in such a way as to be of interest to the general practitioner.

ROENTGEN RAY DIAGNOSIS AND THERAPY. By Carl Beck. Illustrated.
New York and London: D. Appleton & Co., 1904.

Beck has been so identified with the application of the Roentgen rays to medicine and surgery that a book on this subject from his hands should receive a more cordial greeting than would one from any other medical writer.

The first section of the book is technical, and is devoted to a description of the apparatus, the Roentgen technique, fluoroscopy, skiagraphy, and examination of the patient; the second, the regional part, gives practical directions for the exploration of the head, neck, chest, abdomen, pelvis, and lower extremities, shoulders, and upper extremities. Moreover, there are chapters upon malformations, diseases of the bones and joints, and neoplasms.

The utilization of the Roentgen rays in fractures, and the medicolegal aspect of the Roentgen rays, are also considered.

The final section is devoted to Roentgen therapy, special indications, Becquerel rays and radium, Finsen method and ultraviolet rays, bibliography, and the index of usual form.

The whole book is illustrated by admirable reproductions of photography. It should prove serviceable not only to those skilled in the use of the apparatus, but to the general practitioner, since thus he can acquire as practical a knowledge of the subject as may be obtained without actual experience.

SOCIAL DISEASES AND MARRIAGE. By Prince A. Morrow.
New York and Philadelphia: Lea Brothers & Co., 1904.

By social diseases Morrow means such affections as are usually acquired by illicit sexual relations. The object of his book is to safeguard marriage from the dangers of venereal disease. The first step in the attainment of this object is a clear exposition of the dangers introduced into marriage by venereal diseases, and the next is to indicate the most effective means of preventing these dangers and to limit or circumscribe their spread.

With admirable sense and a proper dignity there are treated such subjects as gonorrhea as a factor of depopulation, the responsibility of the medical profession, the responsibilities involved in deciding on the fitness of a venereal patient for marriage, professional discretion, the comparative significance of gonorrhea and syphilis as social dangers, the influence of gonorrhea on sexual capacity, the risks to the offspring, the dangers to the entourage, the relations of syphilis to marriage and to divorce, social prophylaxis, educational measures, administration measures, and sanitary measures.

It may be said of this book that it

should be read not only by every physician and student of medicine, but by every citizen of the entire community. Indeed one of the most important steps in the prevention of the incalculable loss incident to venereal diseases lies in the direction of education.

SYSTEM OF PRACTICAL SURGERY. Vols. I and II: Surgery of the Head, Neck, Thorax, and Spinal Column. By E. V. Bergman, J. von Mikulicz, and Von Bruns. Translated and Edited by Wm. T. Bull, Walton Martin, and C. P. Flint.
New York and Philadelphia: Lea Bros. & Co., 1904.

This work, encyclopedic both in scope and composition, is of a practical and scientific value so great as to have entitled it to almost immediate translation into Spanish and Italian. It is now made available to English-speaking surgeons through the collaboration of Bull, Martin, and Flint, who, not contenting themselves with simple translation, have very wisely edited the German edition, and have added to it those methods of procedure which are most favored by American surgeons.

It is to be noted that the first volume has among its contributors such surgeons as Krönlein, Kümmel, Küttner, Lexer, Schlatter, and Wiesman.

The first section, on injuries and diseases of the skull and its contents, is by Von Bergmann. In this relation the discussion upon compression and concussion is extremely valuable. Indeed, the entire section is rather a monograph than a textbook contribution, covering as it does between three and four hundred pages.

Kümmel contributes a chapter upon malformations, diseases, and injuries of the ear, considering the subject rather from the standpoint of the surgeon than from that of the specialist. The section on malformations, injuries, and diseases of the face, and plastic operations, is contributed by Lexer. A discussion of the various methods of closure of a cleft palate leaves much to be desired. The neuralgias of the head are considered of so much importance that Krause contributes a section on the surgical treatment of these affections. Special attention is given to trigeminal neuralgia and to neuralgia of the occipital nerves.

Anomalies, injuries, and diseases of the salivary glands are somewhat superficially considered by Küttner. Schlatter contributes a special section on injuries and diseases of the jaw. Malformations, injuries, and surgical diseases of the nose and its adjacent tissues is written by Kümmel, to whom was also assigned malformations, diseases, and injuries of the mouth and pharynx.

The second volume has in its list of contributors Angerer, Bruns, Erhardt, Eiselsberg, Henle, Hofmeister, Jordan, Kümmel, and Riedinger.

The thyroid gland is considered of sufficient importance to have devoted to it a special section, as is also the mammary gland. Diseases and injuries to the cord and its membranes are covered by very few pages, and this in a surgical work is proper, since these affections are usually not amenable to surgical treatment. Malformations, diseases, and injuries of the vertebral column are considered in sufficient detail for the operating surgeon.

In these two volumes are embodied the defects incident to all works of collaboration; they are somewhat ill balanced. Von Bergmann's one section upon surgery of the skull and its contents is, however, truly admirable. None the less, the material has been contributed by men of such wide experience that the work is likely to rank with the best of those thus published, though it can never take the place of either the text-book or the true encyclopedia.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

One of the most interesting investigations of the past few years is that which has been carried out by Dr. Poynton and Dr. Paine on the bacteriology of acute rheumatism. Stated briefly, the conclusions which these observers claim to have established are these, that diplococci are present in many of the tissues of the body in rheumatic fever, that these diplococci can be isolated from the joint exudation, from the cardiac valves in rheumatic endocarditis, from the pericardial fluid in rheumatic pericarditis, and during life from

the blood of patients with rheumatic pericarditis and from the throat in rheumatic tonsillitis, and that symptoms resembling rheumatism can be produced in rabbits by intravenous injection of these microorganisms. During the past month Dr. Poynton recorded before the Medical Society of London some observations on the infective nature of rheumatic fever, as shown by the case of a child who after chorea and endocarditis developed an acute illness with irregular pyrexia, rapidly progressive anemia, an enlarged spleen, and a loud systolic bruit in the mitral area. After death pure cultures of the diplococcus were obtained from the heart valve, the spleen and the kidney, and an impure culture from the lung; rabbits and monkeys were inoculated, and died with arthritis, endocarditis, and pericarditis; and finally the microörganism was obtained again in pure culture from the tissues of these animals. This is only one of many cases in which the diplococcus has been demonstrated in fatal cases of rheumatism; and its value lies chiefly in the light which it throws on so-called "malignant endocarditis," for in this case the clinical course and the post-mortem findings agreed in stamping the disease as malignant endocarditis, but the bacteriology showed that the infection was the same as is found in simple rheumatic endocarditis—the difference was one of virulence, not of kind. In his remarks upon these observations Dr. Poynton alluded to the skepticism—or should it be called scientific caution?—with which the infective nature of rheumatic fever had been regarded; he said that after all the evidence which had been produced, he felt inclined to ask, "What more proof do you want?"

It is clear that error dies hard, and probably it will be a long time before the time-honored purely chemical theories of rheumatism become extinct, and perhaps still longer before preventive measures are generally adopted to control the spread of rheumatic infection as is attempted in the case of tuberculosis; but it is "devoutly to be wished for" that some measures should be taken to check the spread of rheumatic disease, for here in London, as Dr. Poynton mentioned, it is rife amongst the children of the poor and causes a vast amount of suffering.

As one practical step in this direction, it was suggested by Dr. Paine at this meeting that the urine should be disinfected in cases of malignant endocarditis; he might have added in all cases of acute rheumatism, for according to his and Dr. Poynton's investigations the diplococcus can be found in the urine of patients suffering with simple acute rheumatism. The Medical Society of London is not always engaged in such serious matters; once a year it indulges in ice-creams and music—*nemo sapit omnibus horis*—and on this occasion an annual oration is delivered; which this year was entrusted to Sir Isambard Owen. He took for his subject the future of medical education in London; he deplored the lack of public interest in scientific training, and particularly the difficulty of inducing the public to give pecuniary support to educational schemes; he contrasted the liberal assistance which scientific training and scientific research have received in France and in America with the poverty of such an important body as the University of London. Whilst heredity is still a subject of sempiternal discussion, and its laws are still an unknown quantity, there are apparently those who imagine that by practical application of the little we know, or think we know, of heredity to social problems, we shall hasten the dawn of a golden age; this at any rate was the impression left by an address given before the Sociological Society by Dr. Francis Galton on "Eugenics." This term is intended to cover a wide range of studies all dealing with the influences which tend to improve the inborn qualities of the human race; in fact "Eugenics" is a sort of short-cut in Evolution. One speaker pointed out that wives and husbands were selected with less care than a cashier or a cook, and what can you expect of such unions? Probably the practical outcome of the discussion would have been in no way diminished, if they had accepted the very simple rule laid down years ago by Dr. Oliver Wendell Holmes for the improvement of physique and prolongation of life, "some years before birth to advertise for a couple of parents both belonging to long-lived families. Especially let the mother come of a race in which octogenarians and nonagenarians are very common phenomena."

At the West London Medicochirurgical Society an interesting discussion took place recently on "Adenoid growths in the nasopharynx, when and how to operate." Mr. G. A. G. Simpson pointed out that there is normally present in the nasopharynx a mass of lymphoid tissue which is known as the pharyngeal tonsil, and that this tissue tends to atrophy as adolescence approaches. In 90 per cent of children with "enlarged tonsils" this lymphoid tissue is also enlarged, forming the masses described as adenoids; and similar overgrowth is sometimes present without any enlargement of the faucial tonsils. An attack of acute rhinitis, "a bad cold," leads to engorgement and swelling of this lymphoid tissue, and this condition may remain after the "cold" has subsided. Where this happens Mr. Simpson would remove the adenoids, otherwise there might be recurring attacks of catarrh of the Eustachian tubes, leading to thickening of their lining and so to obstruction of the entry of air into the middle ear, with resulting retraction of and permanent damage to the membrana tympani. Obstruction of the Eustachian tubes may occur where there is very little adenoid overgrowth on the posterior wall of the nasopharynx, for in such cases it was often found that there was considerable adenoid tissue about the orifice of the Eustachian tubes and in the adjacent fossæ of Rosenmüller. The practical significance of this, he said, was that in all cases where, after politzerizing, catarrh of the middle ear persisted, adenoids should be removed even if small in amount. In new-born infants adenoids were occasionally sufficient to obstruct respiration and make sucking impossible, and as the nasopharynx is too small at that age to allow of digital exploration, it was well in all cases where the respiratory obstruction in the nasopharynx was not due to rhinitis, specific or otherwise, and not due to congenital occlusion of the posterior nares, to insert a very small curette and clear the nasopharynx of any adenoids which may be present. In older children any interference with mental or physical progress, and any backwardness in speech, a recurrence of bronchitis, laryngitis, or asthmatic attacks, and of course any repeated catarrh of the middle ear, were indications for the removal of adenoids if present. He admitted, however, that there were cases in which with only a small degree of adenoid overgrowth it might be possible to do without operation, and in such cases he would use a nasal douche for any nasal catarrh present, and would order daily respiratory exercises, the child to lie on its back for half an hour three times a day breathing as deeply as possible through the nose whilst the mouth is kept shut.

When operation is decided upon, he would purge the child for a day or two previously to reduce the tendency to hemorrhage; the teeth should be cleansed with Sanitas for two or three mornings before the operation, and the mouth well washed out with boracic acid lotion on the day; the operator's hands should be as carefully cleansed as for any other operation. The question of anesthetic was an important one; for children over 10 years of age gas might be used alone, but for younger children, who do not take gas well and tend to "come round" very quickly, it was not suitable; somnoform had been used, but it was open to grave objection because with it the cough reflex was rapidly lost; probably the best was chloroform, which should be given to such a degree as not to abolish the cough reflex, so that if any blood or fragments of adenoid fell into the larynx they would be coughed up. As to the method of removal he recommended curetting with the largest Gottstein's curette which would go between the Eustachian tubes; with this the posterior wall of the nasopharynx is to be cleared, and then the remaining adenoids about the Eustachian orifices and the fossæ of Rosenmüller are to be cleared with the finger-nail, or if preferred with a Bronner's small curette: in this way a thorough removal of the adenoids can be effected.

Dr. Furniss Potter said that even granting that respiratory exercises were of any value whatever in cases of adenoid overgrowth, it was absurd to suppose that in any household they could be carried out regularly and thoroughly in the manner suggested. He thought that operation was less trouble and more certain in its effect. As to the choice of anesthetics, he considered that the use of "gas only" for the adenoid operation was responsible for many of the "return cases"

of adenoids; gas allowed too short a time, and thoroughness of removal was far more important than aiming at the minimum number of seconds in which the operation could be done; a far more satisfactory anesthetic was the combination of nitrous oxide gas and ether. The use of the curette also did not find favor with him, for this instrument was apt to slip over the adenoids without cutting them off, or to leave them behind half-severed. He preferred the Loewenberg forceps.

Perhaps one of the most refreshing features of the discussion was the recognition by some of the speakers that there are children who live tolerable, perhaps even useful, lives *without* having adenoids removed; indeed one could almost believe that some of the speakers had lost their faith in the ability of the adenoid operation to cure all the ills that children's flesh is heir to. One speaker said: "I have never found patients suffering from enuresis benefited by the operation;" another went further, admitting that some adenoid overgrowth "often exists without producing any symptoms whatever."

The treatment of skin affections was the subject of some lectures delivered recently at the Graduates' College in London by Dr. Macleod, and he emphasized some general points rather than the requirements of particular diseases. One of the most important, he said, of general principles in the management of skin disease was the value of rest, especially in the more acute forms of skin affection. Physical rest, confinement of the patient to bed, or at any rate keeping him in the recumbent position, lessened the activity of the skin, and by quieting the action of the heart, lowered tension in peripheral blood-vessels and reduced hyperemia of the skin. Such treatment had also the great advantage of allowing thorough application of local remedies. In some cases apart from general rest, the part affected required rest in particular; for instance, it was useless to try to cure a leg-ulcer with varicose veins whilst the leg was not kept raised on some support; to allow a patient to stand or walk about with such a condition was to make treatment vain. But not only physical rest was to be aimed at, but also mental rest; in acute affections especially, such as acute eczema or a general psoriasis, the worries of business might greatly retard a patient's recovery, and although such matters were sometimes beyond our control, the effort should be made to divert the patient's mind by some light employment; the effect of the mind on a generalized skin affection was, he said, no fetish but a serious reality. Another kind of rest was also to be remembered as important in particular cases, namely, rest from overzealous treatment; there were cases in which psoriasis had been converted into an exfoliative dermatitis, and scabies into a sulphur-dermatitis, by the energy of an injudicious medical man, and the one thing needed by the unfortunate patient was rest from treatment. As to diet he thought that elaborate diet charts were seldom required in skin affections; in acute conditions it might be wise to limit the food to milk diet, but in chronic cases any reasonable diet might be allowed so long as the digestion was good. With regard to alcohol, it might be taken as a general rule that the less alcohol taken by a patient suffering with any skin affection the better; its local effect upon the skin was certainly to aggravate inflammatory conditions; it was only when the digestion was poor or the patient feeble that alcohol should be allowed, and then a little claret, or hock, or spirits with soda water should be prescribed, never sweet wines or beer.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

The treatment of mucomembranous enteritis is always difficult, and the use of pharmaceutical agents is steadily growing less frequent. Mineral waters, such as Plombières and Châtel Guyon, or Bains-les-Bains, have been found effective, if their action is prolonged sufficiently. Of late electricity has been used more and more, and electrical specialists such as Delherm and Zimmern have published their results, which would seem to be most satisfactory. Doumer was the first in 1899 to describe the good effects obtained from the use of galvanic currents. In an article published in the *Presse Médicale* Zimmern has described the results he has obtained by using a galvanic current, the intensity of which is very slowly modified.

The current begins at 0 and goes up to between 60 and 150 milliamperes. It is then brought down to 0 and reversed, being employed in like manner. The current is applied by means of two electrodes, the latter being placed over each iliac fossa. Each treatment lasts about twenty minutes and is carried out three or four times a week. During the last three years Dr. Zimmern has carried out this treatment on about thirty patients, who had tried the usual treatment without success. In all but two cases the results were favorable, and in twenty cases there was complete disappearance of the constipation and of the symptoms of enterocolitis. As a rule Dr. Zimmern suppresses all drugs for the constipation, with the exception of two spoonfuls of castor oil every five days, helped out by an intestinal lavage, if necessary, and the use of a small cold enema (100 grammes) to tone up the rectal ampulla. According to Dr. Zimmern the effect of the electricity is not so much on the muscular contraction of the intestine as on the condition of congestion, which is very much ameliorated.

At a recent meeting of the Society of Therapeutics, Dr. Delherm described the results he had obtained in the treatment of fifty-three cases of mucomembranous enteritis by means of the galvanofaradic or galvanic current. Fifty-three cases were seen a long time after, and in thirty-six cases the results were very satisfactory.

Dr. Martinet has written recently a most interesting article in the *Presse Médicale* in which he describes epistaxis as seen amongst the aged who suffer from hypertension. This form of nosebleed is generally seen during the winter, and is often brought on by exposure to the wind, or by a prolonged effort. The hemorrhage may recur for several days, and is accompanied by all the signs of hypertension, such as hard pulse, metallic nature of second sound at the base of the heart, and swelling of the temporal arteries. The face is congested, there is headache and a sensation of tension. Sometimes this hemorrhage is not the only one, it being followed by a hemorrhage of the lungs. In treating this form of hemorrhage one thing is to be remembered, and that is that this epistaxis is often providential, and destined to avoid excessive hypertension with possible hemorrhage in the brain. It should therefore at first be respected, so long as it is not too abundant, the patient being placed in a rather cool room, in a sitting posture. Mustard plasters may be applied to the legs, and cold compresses on the head. Perfect silence, rest, and a very light diet are also to be recommended. If, however, the epistaxis does not show any signs of disappearing, it should be treated surgically. The usual treatment in France is a tamponade with gauze dipped in a 1-6 solution of antipyrin or oxygenated water, or else cauterization with nitrate of silver. If there is distinct hypotension small doses of ergot, of hamamelis virginica, or digitalis may be given, but what should be avoided most carefully is giving large doses of these drugs during the first stage.

It is rare that injections of antitetanic serum are followed by any complication, but a case of this is described in the *Gazette des Hôpitaux*. The patient had received an injection of 20 cubic centimeters, and three days after there appeared an eruption of small red spots, with fever on the eleventh day. The eruption at this period covered the whole body, and there were very severe pains on the slightest movement. The treatment of this condition consisted in complete immobilization, milk regimen, and the daily use of 5 grammes of salicylate of soda. Five days later the fever left the patient, and he was discharged cured twenty-five days afterward.

Dr. De Lapersonne, professor of ophthalmology, has been trying recently in his service a new local anesthetic called stovaine, which was presented last March to the Academy of Medicine. This drug, which is a hydrochlorate of amyleine (LB), was first injected into rabbits, and 25 cubic centimeters of the one-per-cent solution only produced a little tetanic contracture, whereas 8 to 10 cubic centimeters would cause death. Dr. De Lapersonne made twenty-six instillations and twenty subconjunctival injections, and it was found that this drug was inferior to cocaine for instillations, as it is more painful, and causes a slight amount of desquamation of the cornea, whereas in injections its action takes place more quickly, within a minute, and it is less dangerous.

Dr. Gaucher, professor of dermatology,

has made recently a most remarkable communication on the syphilitic origin of appendicitis at a recent meeting of the Society of Dermatology. While collecting some statistics on the frequency of syphilis Dr. Gaucher was struck by the great number of cases of appendicitis amongst syphilitics. He found he could classify thirty-two cases of appendicitis, which he divided into two categories—one of patients over thirty years of age, and the other of patients under thirty. Of nine cases over thirty, four were men and five women. The four men were all syphilitic; as for the women, one had had syphilis before marriage, three were married to men who had suffered from syphilis, and in one only were there no symptoms of appendicitis. In a second group below the age of thirty, and giving a total of twenty-three cases, twenty-one were heredo-syphilitics. These statistics are certainly very peculiar, and would lead one to imagine that there may be some correlation between syphilis and appendicitis.

During the Congress of Obstetrics, Gynecology, and Pediatrics held at Rouen during the month of April, the three most important questions treated were: the artificial feeding of infants, tendinous transplantation for infantile paralysis, and the result of Lorenz's treatment of congenital dislocation of the hip. On the first of these questions the discussion was long and rather sharp. Dr. Pinard insisted on mothers feeding their children by the breast, and Brunon, the director of the Rouen Medical School, favoring the establishment of what are called "gouttes de lait" in France, which are establishments where well sterilized milk is furnished to mothers.

Dr. Derorque's report on tendinous transplantation was rather severe, the speaker criticizing the observations furnished by various authors, who fail to give definite information as to the results obtained. Dr. Gourdon, who spoke on Lorenz's treatment, said he had used this treatment 116 times with only 17 failures. The best time for the operation is between the ages of two and ten.

According to the *Presse Médicale,* at a meeting of the Academy of Medicine held on the 12th of April it was found after the meeting had begun that there were no communications to be made. The meeting was adjourned as a consequence. This event is certainly a very remarkable one in the history of the Academy.

The Municipal Council of Paris has decided to spend the following sums on transforming the hospitals: The La Pitie Hospital, which dates from 1610, is to be pulled down and rebuilt on part of the grounds of the Salpêtrière, 8,000,000 francs being spent for this. The Cochin Ricord is also to be rebuilt, 11,000,000 francs being used for this. Various other hospitals, such as the Lariboisiere, St. Louis, and Hôtel Dieu, are to be more or less transformed.

It is thought by many neurologists that when blindness comes on in locomotor ataxia the spinal symptoms do not increase or do not even make their appearance, such, for instance, as ataxia and shooting pains. Dr. Pierre Marie, who is a well known French neurologist, does not consider this true, as out of sixteen cases in which blindness came on, in only three cases did the pains disappear. He concludes that this complication has no effect on the ulterior aspect of the disease.

DR. NEWCOMET'S ARTICLE.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The May number of your journal contains a contribution by Dr. Wm. S. Newcomet, of Philadelphia, in which occurs the following:

"One strong point in favor of the *x*-ray examination of the chest is that it will exactly localize a certain lesion; this is not always possible by the ordinary methods of percussion and auscultation, as it is well known that the tension of the tissues will often transmit sounds contrary to the direction that they would take under ordinary circumstances."

Such a statement should not remain unchallenged. Auscultation and percussion, as developed up to date in reference to tonicity, pitch, rhythm, and tempo, needs no confirmation by other aids. "Succussion" of fluids and other evidences of uncertainty and timidity on the part of the examiner are now happily out of date.

Very truly yours,

J. H. TYNDALE.

LINCOLN, NEBRASKA.

—THE—

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Original Communications.

A SYMPOSIUM ON THE TREATMENT OF ALCOHOLISM.

THE TREATMENT OF ALCOHOLISM IN THE CITY HOSPITAL OF NEW YORK.

BY JOSEPH COLLINS, M.D.,

Professor of Nervous and Mental Diseases at the New York Post-Graduate Medical School; Visiting Physician to the City Hospital; Consulting Neurologist to the Hospital for Ruptured and Crippled, etc.

The treatment that patients, coming into the City Hospital suffering from the toxic effects of alcohol, receive varies with the symptoms that they present. In a general way it may be said that we have three classes of cases: (1) Those with frank delirium tremens; (2) those with such nervous manifestations as tremor, mental agitation, unrest, and apprehensiveness, with an insight into their condition; and (3) those who present the mild psychoses characterized particularly by amnesia, slight confusion, psychical and physical inertia. We have also in the hospital many other kinds of alcoholic disorder or disease, such as Korsakow's symptom-complex, multiple neuritis, the so-called alcoholic polyneuritic psychosis, and subacute gastroduodenitis, but these are not considered here because they are looked upon as individual diseases of manifold causation, excess in alcohol being merely one of the commonest causes.

The treatment which our alcoholic patients receive varies with the form of alcoholism that they have. The treatment of the first of the above named

manifestations, viz., delirium tremens, is by far the most important to discuss because the prognosis is so grave in these cases. The City Hospital receives transfers from hospitals under the direction of the Department of Charities, particularly from Bellevue Hospital, and directly from the Bureau of Relief. The patients are of the poor and the unfortunate. The vast majority of them have lived under the most unfavorable influences and circumstances before coming into the hospital, their vitality is low, their strength exhausted, and frequently they have other diseases than the one from which they seek relief. They are therefore a class of patients in which the mortality rate is bound to be high, entirely apart from the disease from which they suffer. This, in a measure, explains the difficulty of treating satisfactorily many of the cases of alcoholism that come to us.

Delirium tremens patients that we have are of one of three kinds: (1) Those that have been to Bellevue Hospital in the alcoholic pavilion "threatened" with delirium tremens, but who after a few days' tarry there seem to improve and are then transferred to the City Hospital, where many of them develop frank delirium tremens; (2) those who go to the reception office of the Charities Department to seek relief for nervousness and prostration following a debauch; and (3) those who develop delirium tremens after they have been in the hospital a few days suffering from some acute disease such as pneumonitis, pleuritis, pericarditis, and acute articular rheumatism. Naturally the treatment differs somewhat in each of them, just as it also varies with the patient's vitality.

The indications in the treatment of delirium tremens are: (1) To maintain the patient's vitality; (2) to overcome the motor unrest and emotional agony; (3) to secure sleep. This we endeavor to do by giving the patient who is of average robustness, apart from the delirium tremens, 15 grains of gray powder, followed in six hours by a saline and copious draught of hot water to facilitate the action of the latter as well as for its diuretic and diaphoretic effects. There is very little use of administering either medicine or food by the stomach before the portal circulation has been thus jogged and an attempt made to overcome the gastroduodenal congestion which invariably attends these cases. In many cases the mercury with chalk is repeated on the second or third day, and in certain cases, in which, judging from the condition of the tongue and breath, the bowels are in a very sluggish state, we add to it three grains of powdered jalap.

The proper feeding of the patient is one of the most important features of the treatment. Predigested, partially digested, concentrated nourishment administered hot, by the stomach or rectum, or both, is what we depend upon to maintain the vitality of the average severe case of delirium tremens rather than stimulant. As a matter of fact we rarely use alcoholic stimulant in any case of uncomplicated delirium tremens whatever its gravity. When it is complicated with pneumonia, as unfortunately it not infrequently is, we give whiskey and brandy freely if there are cardiac and pulmonary indications that call for stimulation. I have tried the plan of giving small doses of alcohol for a few days to patients with delirium tremens, which one sees recommended now and then by writers, but I long since discarded it. Delirium tremens is an intoxication neurosis that develops only on the foundation of chronic alcoholism, and it would seem highly illogical to continue the intoxication. In a few cases it is necessary in order to prevent collapse, but in my experience these cases are rare.

The second indication in treatment, to overcome motor unrest and emotional agony, is accomplished by the use of the hot bath, the hot pack, and the administration of hyoscine hypodermically. Of these measures the first is by far the most important. Nothing pulls the patient's pulse up so quickly and makes him breathe more slowly, quells his delirium, and soothes him physically and mentally so much as a brief, very hot bath (from two to five minutes, temperature 110° to 115° F.), and especially if at the same time the patient is given a dose of trional or veronal taken with copious draughts of very hot water. The diaphoresis that follows, which can be enhanced and prolonged by having the patient wrapped in blankets, is usually followed by quiet and sleep. It often requires much force to get the patient into the bath, and manual restraint for a short time afterward, but the results are pleasant in the majority of instances. Similar results are to be obtained from the

hot blanket pack, although the latter is not to be compared with the hot bath as a vasomotor stimulant. This consists in wrapping the patient in woolen blankets that have been taken from hot water of 140° to 160° F. and wrung mechanically. This pack acts first as a stimulant and then as a sedative. The patient is left from three to five minutes, depending upon the condition of his pulse, respiration, and temperature. It need scarcely be said that this pack is never utilized in febrile delirium tremens unless there is acute renal complication. As a matter of fact, we rarely use the hot pack when there is any indication that collapse threatens, while when such conditions exist we are very apt to use the bath.

In the less severe cases of delirium tremens and delirium tremens occurring in individuals whose tissues are free from organic disease, the result of chronic alcoholism or other causes, and in febrile cases, the wet sheet pack, the water at a temperature of 65° F., the patient being enveloped from one to two hours, is advisable. This is maintained to the so-called second stage, when the temperature of the warm, moist air surrounding the patient reaches about 95° F., the superheating stage. Overheating is carefully avoided by withdrawing most of the covering of the sheet as soon as reaction is well established and before such symptoms as blushing of the face and increased restlessness appear. Not infrequently patients fall asleep while in the pack. It is a valuable measure in the treatment of mild forms of delirium tremens.

When these measures do not suffice we resort to hyoscine hydrobromate, given hypodermically, from 1/100 to 1/50 of a grain dose. When this does not effectually cause sedation we have no hesitation in doubling it. As a rule it may be said that we make little use of drugs that are frequently employed in delirium tremens, such as opium, chloral, and the bromides. Of course it is easy to restrain a patient with delirium tremens by giving him a quarter or a half grain of morphine hypodermically, especially if 30 grains of one of the bromide salts and from 15 to 20 grains of chloral are given at the same time, but we are convinced that such drugging does more harm than good by adding to the patient's asthenia and to the hemolysis which exists in nearly every case.

The third indication for treatment, viz., securing sleep, is accomplished partly by drugs and partly by hydriatic procedure. The drugs that we use are practically three—trional, veronal, and paraldehyde—and the reliance which we place upon them, apparently, judging from the frequency with which they are used, is indicated by the order in which they are enumerated. Although veronal, one of the most recently introduced hypnotics, has something to be said in its favor, and particularly that it produces a hypnosis more profound than that caused by trional, there are disagreeable features attendant upon its use which compel us to admit that trional is the more suitable hypnotic. My experience with veronal, which I have used upward of a year in a great many cases of insomnia of manifold causation, is that it causes quite the ideal artificial sleep, it sometimes produces motor incoordination, especially of the lower extremities, erythematous eruption, neuralgia, and it diminishes the solids and urine. Although trional will do all of these, I have not noticed any one of them with anything like the frequency that I have after giving veronal. Nevertheless, veronal is an excellent hypnotic, and the sleep-producing effects are greater than those of trional, given in from 10- to 15-grain doses. It usually produces sleep after the second or third dose in patients with delirium, whereas trional must be given oftentimes in twice or in three times this quantity before any considerable hypnosis results. We have the best results from the administration of trional when we give it in 10-grain doses every hour and with large draughts of hot water. After from four to six doses have been taken the patient usually secures a more or less protracted sleep.

Paraldehyde is the most reliable of all hypnotics. Every one who has much experience in nervous and mental diseases will concede that this is a fact. It is never a pleasant medicine to take, and if given frequently it is sure to disorder the digestion. In delirium tremens the subacute or chronic gastroduodenal catarrh is almost invariably present, and paraldehyde tends to increase it and exaggerate it; for this reason we never give it in the City Hospital as a routine measure, but when other hypnotics fail we rely upon its

administration in producing sleep and are rarely disappointed.

The general treatment of the patients with uncomplicated delirium tremens need not be particularly dwelt upon. The necessity for keeping the avenues of elimination open—*i.e.*, the bowels, kidneys, and the skin—is as urgent in delirium tremens as it can well be. The surplus of poison within the system must be got rid of through these avenues, and if they are not organically diseased, especially the kidneys, they may all be made to work vigorously with advantage to the patient.

The treatment of the second class of patients that we receive—*i.e.*, those who are suffering from mild attacks of delirium tremens—differs materially from that just outlined. Many of these patients have had one or more attacks of frank delirium tremens, and they have sense enough to seek relief for the condition whose symptoms they interpret as heralders of an attack. In these cases the treatment usually consists of the administration of gray powder and jalap, alkaline diuretic drink, peptonized milk, and an occasional dose of sleep-producing medicine. We rely most upon the evacuants and upon feeding.

In the third class of cases—*i.e.*, those who develop delirium tremens after they are in the hospital a few days suffering from one of the acute infectious diseases —the most important feature in the treatment, in addition to the ordinary treatment of delirium tremens, is stimulation. We find that these patients must have stimulant early, and the stimulant *par excellence* for them is alcohol. It has been our experience that it is a waste of time to use strophanthus, camphor, or digitalis; alcohol is the only thing that seems to reach their jaded sympathetic nerves. We use digitalis especially when the pulse is weak, feeble, and rapid, and the delirium undergoes a corresponding change—*i.e.*, becomes asthenic in character. But we do not rely upon it alone. We use it in conjunction with alcoholic stimulants.

In conclusion it may be said that although the therapeutics must vary in each case, and the indications in one instance may be very different from those in another, nevertheless there are a few underlying principles in the treatment of all the cases. In the first place, it is the opinion of the writer that sedatives are used too often and too indiscriminately. Again, in the treatment of all cases, the indications are to secure sleep, to overcome mental and motor unrest, to support and maintain the patient's vitality, and while so doing to endeavor to eliminate the toxic agency from the body. Finally, the greatest care should be taken in the application of mechanical restraint of all forms of asthenic delirium lest the encroachment upon respiratory mechanism lead to supplemental complications and jeopardize the life of the patient. The State Commission in Lunacy of New York have recently contributed to the humane methods of treating insanity by issuing an order that no manual restraint shall be applied unless a nurse is on guard all the time while it is on, and for no longer than a brief, stated period. There will rarely be any necessity for mechanical restraint in any case of delirium tremens if the indications above outlined are followed.

Delirium tremens is a grave disease at all times, and especially is it hazardous to the life of those who have organic disease of any kind. Disease of the organs of elimination and circulation adds enormously to the gravity of an attack. In such cases treatment must be directed early and vigorously to the infirm organs.

ALCOHOLISM AND ITS TREATMENT AMONG THE INSANE.

By H. W. Mitchell, M.D.,
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The treatment of alcoholism in all its phases leads one into many fields. It is not the purpose of this article to discuss the subject in its broadest view, but to limit observations to that group of alcoholic cases requiring treatment in the public insane hospitals. The number of insane as a result of alcoholic habits is large and relatively increasing. Conservative estimates, both in this country and Europe, show that from 15 to 25 per cent of the admissions to insane hospitals are cases in which alcohol is the prominent etiological factor. It follows that physicians among the insane have a considerable experience in the observation and treatment of a peculiar group of alcoholic victims, showing the worst effects of inebriety.

We may, for the sake of clearness, describe the cases under the terms acute and chronic alcoholism, placing under the former heading the cases of delirium tremens, and of acute alcoholic hallucinosis, and including under the latter cases of alcoholic delusional insanity, dementia, and the so-called dipsomaniacs showing no special mental symptoms, and who in some localities are cared for largely in the insane hospitals, and in others are sent to penal or special institutions.

In the case of delirium tremens we are dealing with an acute disease of a few days' duration tending to self-limitation and recovery, barring complications. It is of the highest importance that the case should receive careful nursing and medical attention from the onset of symptoms until convalescence is established. It is too often the case that a patient is compelled to pass one or more days in the police station during the height of symptoms, exhausting strength and sustaining bruises which are often the seat of subsequent infections, becoming serious complications because of the patient's weakened powers of resistance. It is the duty of public officials to devise means whereby these patients may speedily be placed under appropriate environment and not left to the care of station-house officers.

The indications for treatment in this acute toxic delirium are to lessen motor excitement, sustain strength, promote elimination, and to induce sleep.

It is a serious mistake to employ mechanical restraint or the solitude of a padded room as the routine treatment of acute alcoholic cases. In home care it may seem necessary to employ restraint, and in the hospital it may be an easy solution of the problem to close the door of a padded room upon the delirious patient and leave him to exhaust strength following his delirious inclinations, but either procedure should be regarded as a measure of expediency not to be employed when other methods of care are possible. The delirium is usually of a nature peculiarly ameliorated by the constant efforts of a well trained nurse. Such a one by tactful conversation and attention can often accomplish the seemingly impossible by keeping the patient resting more or less quietly in bed until sleep can be induced.

During the early stages of delirium the prolonged warm bath will be found to influence motor excitement favorably, the patient often submitting to prolonged immersion with little active objection.

The wet pack may be substituted for this measure, but active objection on the part of the patient interferes with the proper technique, and it is contraindicated unless this can be carefully followed.

The control of motor excitement is of prime importance because of its harmful influence upon the often weakened heart of alcoholic subjects. Rest in the recumbent position, with the least possible expenditure of the patient's strength, is the end to be obtained, if possible.

To sustain the strength nutritious liquid food should be given freely at regular intervals, if the stomach permits. The circulatory system will often need stimulation. Strong tea or coffee, strychnine, digitalis, or normal salt enemata or infusions, can be employed as indicated. Much is said for and against the use of alcohol as a stimulant in delirium tremens. Each physician must choose for himself whether its administration is or is not indicated. It is argued that as delirium tremens often seems to follow the sudden cessation of drinking habits, its gradually decreasing use is of benefit. The burden of proof rests with those who hold this theory. It is certain that the withdrawal of alcohol does not affect a series of cases unfavorably, either as related to severity of symptoms or mortality. In view of the somewhat questionable value of alcohol as a therapeutic remedy, one finds it difficult to believe that its use is of any benefit in the treatment of a condition unquestionably due to its toxic influences on the nervous system.

The bowels and kidneys should be kept active to promote elimination. In asthenic cases frequent enemata of saline solution may be found to serve the double purpose of stimulation and elimination.

To promote sleep is the chief indication, and no routine measures can be expected to produce uniformly good results. In some cases sleep will often follow the use of the warm, full bath and the wet pack, while others will tax all resources. The hydrotherapeutic measures can well be tried in all cases, and, supplemented by drugs, give excellent results. In the selection of the latter one finds unlimited choice. No one hypnotic seems to have a specific action in alcoholic delirium,

Chloral is to be used sparingly because of its depressing effect on the heart. Opium preparations do not meet the indications. Sulphonal, trional, and similar remedies are uncertain and often ineffective. Hyoscine hydrobromate, gr. 1/100, with morphine sulphate, gr. ⅛ to ¼, has been found to be a fairly reliable combination, and to have no appreciable bad after-effect. Some recommend the former drug in frequent doses until the amount used in twenty-four hours may equal ¼ grain. It is doubtful if best results are obtained by such liberal use of the drug. Paraldehyde, in doses of one to two drachms, is a particularly reliable hypnotic, and so far as observed can be safely used in all cases. It should be a general rule to produce sleep with the least possible depression.

It is a mistake to conclude the patients are well able to care for themselves when the delirium has but just subsided and strength partially restored. Even though, with characteristic lack of proper insight, they see no reason for this conclusion, detention in hospital from three to six months is best for the patient. Tonics and hydrotherapy, combined with fresh air, light exercise, full diet, and complete abstinence from alcohol, are imperative measures to be followed for a long period if the poisoned nervous system is to be restored to a condition where it can best withstand the renewed alcoholic indulgence which so frequently follows. It should be the aim to release the patients only when restored to the best possible physical condition, and to strengthen by every moral influence the weakened will-power to resist further temptation. Continued indulgence after delirium tremens is often followed by development of a chronic alcoholic psychosis.

The many possible complications require symptomatic treatment, but the indications outlined above are still to be met.

Alcoholic hallucinosis may be of the acute or subacute type, and in the former often simulates delirium tremens, but the characteristic physical condition and signs of delirium are wanting. The physical symptoms require much less attention; tonic treatment is usually sufficient, though hypnotics may be needed for a short time. During the period of active visual and auditory hallucinosis careful oversight must be maintained because of the danger of violence and suicidal impulses. In the writer's experience about 20 per cent of cases showed active suicidal tendencies.

In the subacute type there is danger of recurrence of mental symptoms, after weeks of apparently normal attitude. Careful observation should be prolonged for several months after disappearance of mental symptoms.

The mortality in uncomplicated cases of acute alcoholism is practically *nil*. In general hospitals, where complications are usually present, the results must vary with the severity of complications. Recurrences are only too common in the experience of hospital physicians, and the attacks are frequently followed at a longer or a shorter interval by development of a more serious alcoholic psychosis, as a direct result of resumption of drinking habits.

A few words may be spared to a description of the varying conditions found in chronic alcoholism.

Among the so-called dipsomaniacs we find many who are constant and persistent consumers of alcohol whenever the opportunity is presented to satisfy their appetites, and the only prolonged abstinence they experience is during the periods of confinement resulting from their dissipation. The toxic effect of alcohol is thus cumulative and results in weakened will-power, loss of finer sensibilities and mental capacity. With patients of this class little can be done for their improvement beyond giving them temporary relief from the immediate effects of excesses. The only hope is to arouse the will-power of the inebriate to a continued struggle against the appetite, and to place him under influences calculated to make his task possible. Relapses occur in the great majority of cases that have progressed so far as to require hospital commitment.

Another class of inebriates is recognized who have periodic excesses and who in the intervals are total abstainers. To some of these alcohol is even repugnant when not under its influence. A change in mental state precedes the periods of excesses. It is characterized frequently by depression, anxiety, and restlessness. This condition has been considered by some to be one of the manifestations of psychic epilepsy, and the rational treatment is preventive. The condition should

be recognized and restrictive measures adopted until the desire for drink has passed.

The cases of alcoholic delusional insanity often terminate in states of hopeless dementia, for which custodial treatment is the only indication. In every case of this psychosis the patient should be carefully watched or restrained until the activity of hallucinations and persecutory delusions has subsided. The danger of homicidal or suicidal attempts is very great during the early period of the psychosis, and freedom from alcohol for a long period after the cessation of all signs of active mental disturbance is the only measure that offers the patient hope of permanent improvement.

In the treatment of these states alcohol in any form is absolutely contraindicated, and the subsequent health of the patient is rarely maintained unless the habit is completely suspended. It is not safe for the individual weakened mentally and physically by prolonged excesses to tempt further misfortune by the mildest indulgence. The confidence of the patient in his ability to drink moderately and the resulting failure are proverbial. Total abstinence is the only end to be sought. How to secure this result should be the study for each case. It is not sufficient to explain to the convalescent alcoholic the need of future abstinence, and leave him to the sole use of his limited powers of self-restraint. Impress upon him the fact that future health depends upon total abstinence, and in addition give every aid that family interest can afford. If possible, bring him under influence of temperance societies. The writer has induced many patients to take a pledge with their clergymen, with successful results for years in a minority of cases. It must be recognized that the confirmed alcoholic is often unable to exercise ordinary powers of resistance, and that his honest desire for reform must be supplemented by the active coöperation of associates or family.

The therapeutic measures in uncomplicated cases of chronic alcoholism are simple. Institution care, where habits can be controlled, is indicated. Small doses of the bromides for a short period are useful to allay the tremor and restlessness and induce sleep. The frequent gastric disturbances rapidly disappear after the cessation of alcohol and adoption of diet chosen with reference to the condition. Bitter tonics may be useful in restoring appetite. Elimination by simple diuretics and aperients can be supplemented by diaphoresis induced by wet packs or hot-air cabinet, according to the strength of patient. The latter procedures should be followed by cold spray or douche, the temperature and duration being determined by the conditions of each case.

Nux vomica, strychnine, iron preparations, cod-liver oil, are to be used as needed. Tonic hydrotherapeutic treatment is always useful and gratifying to the patient. It should be graded so as to produce the vasomotor reaction that is the guide in these measures.

The iodides and gold salts are recommended for alterative effect.

There is no specific drug for cure or prevention, despite the widely advertised "cures."

The period of detention is often too short. In delusional cases the time should be determined by the mental symptoms. In others it is best to continue the institution care from six to twelve months. During the larger part of this period the patient should be encouraged to take up regular daily work, suited to strength and capacity, preferably in the open air. Formation of habits of idleness should be discouraged.

In addition to the forms of chronic alcoholism mentioned, there is a small group, something under five per cent of the alcoholic cases treated in insane hospitals, of alcoholic polyneuritis with the Korsakoff symptom-complex. Absolute rest in bed is required until signs of active neuritis have subsided, when gentle massage and mild faradic muscle stimulation may be employed, and exercise slowly and gradually adopted. The general treatment should be along the lines mentioned in other cases of chronic alcoholism. Prognosis should be guarded, as a state of permanent mental enfeeblement often results.

Such measures of medical care and supervision, regular habits and occupation, continued for many months, and followed by constant employment of all possible moral support after discharge, furnish the best known treatment for cases of chronic alcoholism. Relapses must be expected frequently, even in apparently hopeful

cases, and should be met by prompt recommitments.

It would seem best for the economic interests of society to demand the permanent detention of intractable cases and their employment in some industrial pursuit.

THE TREATMENT OF ACUTE ALCOHOLISM.

By Fred. C. Johnson, M.D.,
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In writing upon the treatment of alcoholism one is confronted by the array of excellent articles from eminent authorities, discouraging to the aspirant for originality in this branch of therapeutics. As the Philadelphia General Hospital, at the present time, admits only complicated cases of alcoholism—that is, those having or verging on delirium tremens—I shall confine myself to the treatment of this class of cases.

Clemens, of St. Louis, in an excellent article on delirium tremens (*Philadelphia Medical Journal,* vol. 78) says: "When a chronic alcoholic becomes fidgety, complains of insomnia, and is off his drink, an attack of delirium tremens is not far distant." Had he said nourishment instead of drink, I believe the cardinal predisposing factor would have been more specifically indicated.

It has been very properly called a "starvation delirium," and it seems a fairly justifiable assertion that the alcoholic who can and does eat regularly during his debauch seldom develops delirium tremens. I have questioned a great many patients on this point and have invariably received the same answer, viz., "I have eaten scarcely anything in two or three weeks."

I shall not discuss the differential diagnosis, but proceed to outline the treatment of these cases as pursued in this institution.

Upon the admission of a case all alcoholic stimulation is immediately withdrawn and eliminative measures instituted. When the presence of unabsorbed alcohol in the stomach is suspected, the tube is passed or apomorphine hydrochlorate (gr. ⅛) administered hypodermically. The latter has usually proven efficacious, and sedation has often been noted for a few hours afterward. Possibly the subsequent exhaustion is contributory to that end, although no deleterious effects have followed the use of this drug.

A course of calomel followed by salines is routine treatment when the stomach is retentive. Lavage usually insures relief in most of the cases of persistent vomiting; milk and lime water as a diet, with the occasional exhibition of cerium oxalate, will do much toward establishing normal assimilation.

Mindful that all alcoholics are starved, or at least underfed, the institution of proper dietetic measures early is most desirable.

Highly concentrated liquid nourishment is given every two or three hours as the exigencies of the case may suggest. Broths, beef extracts, peptonized milk, raw eggs beaten in milk, and kumiss are given alternately. The addition of powdered capsicum to hot broths is especially useful. During convalescence a stomachic of tincture of nux vomica, tincture of capsicum, and compound tincture of gentian is most useful. Chloral hydrate has proved a sovereign remedy in the treatment of these cases. It was the choice of the late Dr. D. E. Hughes, who contended that it was not to any marked degree a cardiac depressant. It has been used boldly in cases in which delirium tremens was apparently inevitable, with decided beneficial results in warding off an attack. As much as 40 grains has been given every four hours until the desired result was obtained. In cases manifesting cardiac asthenia, strychnine nitrate, atropine, aromatic spirit of ammonia, or infusion of digitalis are combined with this sedative. Morphine is used most cautiously, especially in the presence of demonstrable renal complications. Hyoscine hydrobromate, although a much lauded remedy, has in my personal experience proven disappointing and unreliable. At times its use has been followed by great excitation of the nervous system with subsequent profound prostration. The practice of giving 20 to 30 grains of trional every four hours during the day, with an evening dose of chloral hydrate 20 to 30 grains, has given excellent results in a great many cases. New preparations are tried from time to time, only to return to the use of chloral eventually.

It is most important to keep the bowels well open during the use of the sedative, thereby avoiding the dangers of intestinal

paresis, which not infrequently occurs. Bladder percussion of course is an important feature of routine examination.

Warm sponge baths, and in sthenic cases hot packs, are borne well when renal failure is obvious. Normal salt solution by enteroclysis is also useful in this condition and possesses the added advantage of materially increasing the appetite. Pilocarpine is seldom used. In this hospital there exists an apparently well founded tradition of idiosyncrasy for this drug on the part of the negro. It is interesting to note in this connection that negroes are seldom seen in the alcoholic wards of this institution, and delirium tremens among them is most rare. Lambert, of New York, saw only two cases in a series of 13,000 alcoholics studied at Bellevue.

During the year ending June 15, 1904, out of the 1655 cases admitted to our wards, only six of these were negroes, none of which developed typical delirium tremens.

Restraint is withheld as long as possible, and many cases have secured sleep after the assurance that the objects of their hallucination had been driven away.

During the past few months the wards have been supplied with humane restraint sheets, the device of a local firm, which have simplified and greatly enhanced the absolute restraint of these cases. The abraded wounds, frequently seen after the use of the old form of restraint, are not inflicted; the patient is held secure, and soon ceases his struggles.

The presence of reptilian hallucinations is apparently less common than is the generally accepted belief; usually the hallucinations are in the form of rats, mice, huge spiders, and other insects.

Occupation delirium is common, and a halo about the lights has frequently been described. Except when in restraint these patients should never be alone, as the escape from the object of their hallucinations is usually through the nearest window, should it happen to be unbarred. Shocking fatalities from this neglect are only too common. The room should be darkened and kept as quiet as possible. The importance of the latter was recently demonstrated by the relapse of three patients into active delirium from the noise of carpenters sent into the ward to make needed repairs.

The occurrence of pneumonia as a complication has increased the mortality for this condition enormously, as evidenced by the following statistics for the last year, ending June 15, 1904:

Alcoholism and pneumonia	16
Delirium tremens	11
Alcoholism and uremia	6
Alcoholism and phthisis pulmonalis	5
Alcoholism and erysipelas	2
Alcoholism and enteric fever	1
Alcoholism and intestinal obstruction (operation)	1

Of the 42 deaths, 11 were reported to the coroner, having died within twenty-four hours of admission.

LEAD POISONING FROM THE THERAPEUTIC USE OF LEAD ACETATE IN CAPSULE, WITH A REPORT OF TWO CASES.

By D. J. Milton Miller, M.D.,
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All writers upon materia medica and toxicology agree that the soluble salts of lead rarely produce poisoning when given medicinally; indeed, so infrequent is such a result considered that some authors do not even refer to its possibility. The majority of writers, however, while admitting the occasional occurrence of poisoning from the medicinal use of lead, state that untoward effects result after prolonged use of the remedy only, and from the continued use of small quantities, rather than from a few larger doses. Stillé,[1] Stewart,[2] and many others, for instance, assert that, notwithstanding its general use, comparatively few cases have been reported in which toxic effects have been produced by it. On the other hand, T. Dixon Mann[3] contends that subacute and minor forms of poisoning not uncommonly follow repeated small doses of a soluble salt of lead, varying from slight colic and constipation to decided symptoms of subacute intoxication, viz., intense thirst, metallic taste, constipation, blueline, prostration, numbness, and muscular weakness; the symptoms passing off in a week or two after stopping the drug. Many years ago Tanquerel Des Planches[4] was persuaded that preparations of lead given internally occasion colic more frequently than was generally supposed, the gastrointestinal symptoms consequent upon the ingestion of the metal being overlooked, or attributed to the disease for

which the drug was given; a conception confirmed by one, at least, of the cases recorded in this paper.

Undoubtedly many of the reported instances of poisoning from the medicinal use of lead were due to extreme susceptibility or idiosyncrasy. Only in this way can be explained Fouquier's[5] phthisical patient who had slight colic after a one-grain pill of lead acetate, marked colic after a second pill, and following a third such severe pain as to lead to a magisterial inquiry. Many examples of a like susceptibility will be found in the literature (see illustrative cases at the end of this article). On the other hand, the very fact that lead has been so largely used in the past, and, to a less degree, still is used as a medicine, without producing unfavorable symptoms, is an evidence how tolerant most persons are of the drug. A. W. Blythe[6] cites Christison as giving 18 grains daily for a long time without ill effect, and Phillips[7] says that 5-grain doses are largely used at Brompton Hospital with impunity. These differences of action show that individuals vary greatly as to tolerance of lead, and this should always be borne in mind whenever the drug is administered.

It may seem a useless speculation to endeavor to discover why so many escape injury from the medicinal use of lead, while others are seriously poisoned by small, often minute, quantities—less than one grain in a gallon of drinking water (Blythe)—introduced into the economy in other ways. A possible explanation is that as lead is usually given in pill form combined with other substances, the bulk of the dose is not absorbed, the solution of a pill taking place slowly; possibly in many cases the pill may not entirely break up in the stomach, and may pass into the intestines, where some of the lead may be rendered insoluble by combining with sulphuretted hydrogen to form the insoluble black sulphide. Support is given to this view by the experiments of Oliver,[5] which seem to prove that the gastric juice is the active agent in dissolving lead in the stomach, and that when lead salts have passed out of the stomach along with the acid chyme there is nothing in the intestines to act upon them, except it be the acid products of bacterial life. In the cases reported below the lead was given in gelatin capsules, and this may possibly account for the readiness with which intoxication was induced; the lead salt, being in a free state, probably entered into solution as soon as the capsule was dissolved, just as it would had the lead been given in aqueous solution—at the present time, at least, a very infrequent method of administration.

In this connection it was thought it would be interesting to determine, if possible, whether, since the introduction of the gelatin capsule as a vehicle for the exhibition of medicines, minor degrees of lead intoxication, such as colic and constipation, have become more frequent. The investigation of this question revealed some interesting facts: In the first place, it was found that lead is very much less prescribed than formerly, and that the number of prescriptions calling for the salts of lead received by apothecaries vary very much in different sections of Philadelphia, and in different drug stores in the same section. In some portions of the city the druggists seldom compound a recipe containing lead—some have not done so for years; in other sections some druggists may put up such a prescription once a month or less frequently, others several times a week, according to the season. It was also discovered that lead salts are usually prescribed in pill form, capsules being seldom employed. Inquiry among physicians in the habit of prescribing lead in capsule failed to elicit any cases in which toxic symptoms resulted. It is evident that the medicinal employment of lead has fallen into disuse (the writer believes deservedly), and that a large number of physicians do not prescribe it at all (the writer being among this class); the conditions for which it has been most used, viz., typhoidal hemorrhage and dysentery, being now controlled by more rational and safer remedies. It is also probably true that serious results seldom follow the internal use of lead; but it is the writer's opinion that mild and subacute forms of poisoning not infrequently occur, and are overlooked, or develop after the patient has passed out of the medical attendant's hands.

Case I.—Male, aged thirty, a farmer, admitted into hospital November 1, 1900. For eighteen months the patient had intermittent attacks of dysentery (diarrhea,

with pain, mucus, and bloody stools). The attacks would last a few days or weeks, and then cease spontaneously or from medication. About one month before admission the diarrhea had much improved, the movements being less frequent and more natural; this change he attributed to some capsules which a physician had prescribed for him. Notwithstanding this improvement the patient soon began to experience severe abdominal pain of a colicky character, and localized about the umbilicus. It was for this pain and general weakness that hospital admission was sought. On admission the patient was found to be poorly nourished and anemic, the tongue flabby and coated, and on the margin of the gums of the upper and lower jaw a well marked blue-line could be seen. With the exception of a well accentuated aortic second sound, the thoracic organs were normal. The radial pulse was slow, of increased tension, and the arteries distinctly thickened and palpable. The abdomen was not distended, and was slightly tender on pressure. The spleen and liver were not enlarged. The bowels were moved two or three times daily, the stools consisting largely of fecal matter, mixed with a little mucus, but no blood. The patient complained much of nausea and headache. The eye grounds were normal. The red blood cells numbered 3,984,999, leucocytes 5000, hemoglobin 54 per cent. Dr. Ghriskey reported marked granular degeneration of the erythrocytes, a condition which Moritz,[8] Grawitz,[9] and White, Pepper and Stengel[10] have shown to be a constant finding in cases of lead poisoning. The urine had a specific gravity of 1010, a distinct trace of albumin, and a few hyaline casts. The temperature was normal. Muscular weakness was marked, but wrist-drop and other paralyses were absent, and the patellar reflex was readily elicited. A diagnosis of lead poisoning and subacute colitis was made, and appropriate treatment instituted. During his stay in the hospital the patient at first had most severe and characteristic colic, requiring full doses of morphine and atropine for its relief. Recovery was complete on his discharge on December 26, 1900.

In searching for the source of the intoxication in this case, the only possible discoverable cause was the fact that the patient had for two years, during his working hours, drank water from a lead pipe, a quarter of a mile long, that carried water from a pond to the stable of the gentleman's place upon which he worked. This possibility, however, was quickly dismissed, because none of his then fellow-workmen, who constantly drank of the same water, nor any in the past (the pipe had been long in use) had ever shown any evidences of saturnism; but an additional and more convincing reason was that a reliable chemist could not find lead in the water. The capsules which had had such a good effect upon his diarrhea, and which he had taken for three weeks, were next investigated, and found to contain 1 gr. of acetate of lead and ¼ gr. each of ipecac, capsicum, and ext. of nux vomica. For the first three weeks he took four capsules daily, then for two weeks three daily, and for three weeks, prior to admission to the hospital, two daily, so that he took in all, during a period of eight weeks, about 168 grains of acetate of lead. It is difficult to fix the exact time when the toxic symptoms first manifested themselves, but it was probably about the time when the characteristic abdominal pains were first experienced, or about one month before entering the hospital, and after he had taken about 105 grains during a period of four weeks—a quantity quite sufficient to produce poisoning. This will be referred to further on.

Case II.—A married woman, aged forty, a weaver, admitted into hospital March 12, 1902. The patient was taken ill early in January, 1902, with diarrhea, which continued for two months. For a long time the discharge consisted simply of liquid feces, but during the last two weeks of this period they contained much blood and mucus, and were attended with considerable pain (tenesmus). She was ill enough to remain in bed two weeks. Under treatment recovery was sufficient to permit of return to work; but owing to the onset of severe abdominal pain, weakness, and vomiting, she entered the hospital on March 12, 1904. On admission the patient, a large, flabby, anemic woman, was noted to have a slightly coated, red, and irritated tongue, fetid breath, decayed teeth, and spongy and ulcerated gums. There was a well marked blue-line on the gums of the upper and lower molars and incisors. The conjunctivæ were jaundiced. The appetite was lost, and there

was much nausea, and occasional vomiting of glairy mucus (the woman was not of alcoholic habits). The former diarrhea had given way to obstinate constipation, and there was severe and characteristic abdominal pain, colicky and twisting in character, and centered about the navel. The abdomen was slightly distended and tender in places; its contained organs normal in size and position. Examination of the chest was negative. The pulse was slow and regular, and of increased tension. The arteries were somewhat thickened. The temperature was normal. Neither wrist-drop or other paralyses, nor neuralgiæ, were present, but there was marked muscular weakness and general prostration. Examination of the blood by Dr. Ghriskey showed characteristic degeneration of the red cells; owing to an error a count was not made. The urine contained a trace of albumin, but no casts. The patient remained a week in the hospital, being discharged (at her own request) considerably improved, although not well.

That this patient was suffering from a subacute form of lead poisoning the above history shows abundantly. Diligent search for the usual sources of lead intoxication proved fruitless; the patient seldom ate baker's cakes, or used hair-dyes or cosmetics; her husband did not show any evidences of plumbism; and on inquiry at the mill where she was employed it was learned that the yarns used were colored with aniline dyes. Attention was then directed to the capsules, which she had ceased to take about a week before admission to the hospital, and which had checked the diarrhea. They were found to contain 2 grains of acetate of lead and ⅛ grain of powdered opium each. Of these she had taken twenty-three in one week, or 46 grains of lead acetate in all—a quantity not too small to produce toxic symptoms in a susceptible person.

These two cases differ materially—one being an instance of chronic lead poisoning, while in the other the symptoms were more acute, and were due, in part at least, to peculiar susceptibility, although the method of administration, in capsule, may have had something to do with the rapid absorption of the metal. Among the cases of lead intoxication reported in which the exact dose is given may be mentioned that of Taylor,[5] a child who developed colic, paralyses, and coma after taking 1-15 grain of acetate of lead two or three times daily, for five weeks; Israel's[11] phthisical patient, ending fatally with symptoms of intense enterocolitis after 4 grammes (3j) of sugar of lead taken in eighteen days; and that of Reynolds and Harley,[12] who gave to a man of thirty, with tuberculous diarrhea, 4 grains of acetate of lead daily; in twenty-seven days he had colic, and two days later a distinct blue-line.

In conclusion, it would seem, in the first place, that although the internal use of lead salts is attended with little risk of poisoning, the present tendency of physicians to abandon the use of these remedies is a wise one, especially as in those affections in which it is most employed, viz., dysentery and typhoidal hemorrhage, it is questionable whether the good attributed to them is not due to the opium with which they are always combined, and because we have for these affections more rational, efficient, and safer remedies; secondly, that when lead is being administered the practitioner should always be alert for the first signs of intoxication, and should bear in mind the susceptibility of many persons to the action of the drug; and finally, that pills are probably a safer form than capsules in which to administer the drug.

Cases of lead poisoning from the medicinal use of lead, not referred to in the text:

I. Woman to produce abortion took 10 grains of emplastrum diachylon nightly for three weeks; had atrophy of optic papilla and central scotoma (amaurosis); no blue-line. (Taylor.[13])

II. Infant had signs of plumbism from the use of lead water on the mother's nipple. (Roussel.[14])

III. Two cases of lead poisoning, ending fatally, from use of pills of emplastrum diachylon to produce abortion; both had blue-line, paralyses, convulsions, and coma. (Pope.[15])

IV. A similar case; patient took diachylon in pills; miscarriage at third month, death. (Crooke.[16])

V. Male, eighteen years old, for tuberculous diarrhea was given .03 gramme (½ grain) acetate of lead three times a day in powder; after three doses sudden, violent vomiting and collapse, epigastric pain and constipation; mouth sore, fetid breath; eight days later the same amount of lead produced a similar result. (R. Pick.[17])

VI. Male, forty-two years old; colic

blue-line, and extensor paralysis from taking, for three weeks, on the advice of a newspaper prescription, as much sugar of lead as would lie on the point of a small knife; recovery. (L. C. Wood.[18])

VII. Female, twenty-seven years of age, with hemoptysis; 1 grain acetate of lead in pill every three hours for three days, 2 grains every three hours for one day, and 3 grains at same intervals for five days, when colic and constipation developed; symptoms subsided in a few days. (Gray.[19])

VIII. Male, forty-one years old; aneurismal dilatation of heart; 5 centigrammes (¾ grain) of lead acetate, increased to 1¾ grains (12 centigrammes), for fifteen days; pulse became quieter and thoracic symptoms lessened; on the sixteenth day, colic, blue-line; lead stopped; two days later severe colic and general neuralgia; symptoms gradually disappeared. (Maisonneuve.[20])

IX. Two cases, both army officers, with chronic diarrhea. The first took five or six pills daily of sugar of lead (quantity of lead not stated) for three weeks, when violent vomiting and abdominal pains occurred, death supervening in eight days. The second used the same pills frequently during a period of seven weeks; he was then seized with severe pain in bowels, and constipation; paralysis of arms developed; symptoms persisted and were unrecognized, resulting, after prolonged illness, in death. (H. Huntt.[21])

X. Male, twenty-five years of age, with chronic diarrhea; took 30 grains of acetate of lead in pill for four days, with 1 drachm of vinegar; in about two weeks he had severe, characteristic colic. (L. S. Joynes.[22])

XI. A physician took experimentally ¼ grain acetate of lead three times a day; he gradually increased the dose, until at the end of three weeks he was taking 8 grains twice daily; constipation, colic, fetid breath, blue-line, and loss of muscular power in lower limbs, then supervened (according to Stillé, this is the earliest mention of the blue-line). (Spence.[23])

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THE TREATMENT OF THE SUMMER DIARRHEAS OF CHILDREN.[1]

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In considering the treatment of the summer diarrheas of children I shall include under the term all the disturbances of the intestinal tract which, occurring during the warm season, are characterized by an increase in peristalsis and in the secretions of the gut. This view embraces the mildest form of diarrhea due to indigestion, and unassociated with appreciable lesions of the mucous membrane, to the severest form of cholera infantum and enterocolitis. While these various forms of intestinal disease are each perhaps a distinct entity, characterized by a definite symptom-complex and admitting of a discriminating diagnosis, that treatment, I believe, is the best which

[1]Read by invitation before the North Branch of the Philadelphia County Medical Society, June

regards the worst form an exaggerated type of the mildest.

The mildest form of acute intestinal indigestion should be considered the first stage of the severest form of enterocolitis. With this view of the subject a broader plan of treatment, embracing all the possibilities, at once becomes apparent. It is not my purpose, therefore, to enter into a discussion of the treatment of each individual type of diarrhea, but to outline a general plan of procedure, applicable in its principle to most cases as we meet them. I have therefore endeavored to embrace my views under the following headings: (1) Prophylaxis; (2) dietetic treatment; (3) mechanical treatment; (4) medicinal treatment; (5) serum treatment.

1. *Prophylaxis.*—This is embraced in the removal or mitigation of the etiologic factors. Of these summer heat and improper feeding are the most important. The number of cases of intestinal disease shows a gradual curve of increase, beginning in June, reaching its height in July or August, declining during September, and disappearing about the first of October. Heat acts as a general depressant to all the vital forces, diminishing resistance and impairing the appetite and digestion. It also favors fermentative changes in the milk, which constitute, perhaps, the main exciting cause. Realizing the important rôle which heat plays in the matter of infant mortality, our first duty is to remove the child and its food from the influence of this factor. The children of the opulent can be removed to the country or seashore. It is the slum child, however, who requires our attention and services most, and for these we must make city life as bearable as possible. These children should be kept constantly in the open air, preferably in the parks, and protected from the direct rays of the sun. During the night they should sleep in cool, well ventilated apartments, in beds covered with mosquito netting to avoid the contact of flies and the influence of draughts. Cool bathing should be indulged in regularly. It equalizes the circulation and favors the dissipation of heat and moisture. At any time during the year, and especially in summer, it is an erroneous idea to overclothe a child. Soft, unstarched materials should be used in making the infants' dresses. The dress should be loosely and lightly adjusted, light woolen garments being used next to the skin alone.

The care and preparation of the infant's food are matters of great importance. The correct feeding of children is still the great onus of the pediatrist in spite of the light of our present knowledge. Regularity in time and amount of feeding should be insisted upon. With breast-fed children the problem is a comparatively simple one. Wherever possible the physician must insist upon maternal feeding, and he who does not exhaust every effort to accomplish this is guilty of a moral crime. Every healthy mother should be taught her responsibility and be made to understand that her child's future welfare and her own depend largely upon this fact. Next to mother's milk, the milk of a healthy wet-nurse is undoubtedly the safest food for every child under one year of age. Diarrhea and all intestinal complaints are most common in artificially fed children. For this reason alone weaning should take place during the fall or winter. The milk and all other ingredients of the milk mixture must be carefully handled and carefully prepared, and we should instruct the mother or the nurse in the care of the nipple and the nursing bottle. These matters of detail are of extreme importance, playing a great part in the etiology of intestinal disease. Nipples are to be turned inside out and thoroughly scrubbed with hot water and soap immediately after use. They are then thoroughly rinsed with sterile water, and kept in a solution of sterile borax water until ready for use, when they are again washed in plain sterile water. The same treatment is accorded to the nursing bottle, which should be simple in construction. Bottles with many curves and angles are difficult to clean, and bottles with long nursing tubes form excellent culture grounds for the growth of germs.

More important is the careful modification and preparation of the milk, which should be secured from a reliable dairy, the sanitary condition of which should be known. The city officials should provide for the frequent inspection of milk shops with especial reference to the icing and canning of milk. The requirements of the Philadelphia Pediatric Society are good and should be commended. Where-

ever it is possible I believe the milk should be Pasteurized, or at least filtered, before use. The process of Pasteurization not only destroys the germs, but likewise renders inert their toxins, which are largely responsible for acute milk poisoning. When Pasteurized milk is unobtainable, the same result can be reached by boiling, which should be recommended, in spite of the idea that the milk is thereby rendered indigestible. After sterilization by any of these methods the milk must be well iced until used. Cold is the best preservative, the use of antiseptics being dangerous and unnatural. The water which enters into the composition of the milk mixture must be boiled.

The modification of cow's milk should command our serious attention. The indiscriminate mixing of so many ounces of milk and so many ounces of water and cream is to be condemned. There can be no fixed rule of feeding for every bottle-fed baby. Each case is a law unto itself, and the milk must be so adjusted as to suit the nutritional demands of the child and its state of health, not its age. A child that is thriving on one of the proprietary foods should not have it changed. In starting a child upon a new diet I would not use a proprietary food, but would attempt the modification of cow's milk. In accomplishing this the physician must think in percentages and not in ounces, always starting the child on a low per cent of proteids. It is not my purpose to outline the many methods of milk modification, but to call your attention to the practical one originated by Baner, which is easy of application when once committed to memory. My attention was first called to this method by Griffith, and its use, in my hands, has been followed by such good results that I repeat it here as given by him:

Q—Total quantity of milk mixture required in 24 hours.
C— " " " cream " " " "
M— " " " milk " " " "
W— " " " water " " " "
S— " " " sugar " " " "
P—Percentage of proteids desired.
F— " " fat "
L— " " lactose "

From these letters we have the following formulæ:

$$C = \frac{Q \times (F - P)}{16}$$

assuming that the cream contains 20 per cent of fat, the denominator in this formula being 4 less than the percentage of fat in the cream. If the cream contain 16 per cent of fat the denominator would be 12. Hence it is always necessary to know the strength of the cream.

$$M = \frac{Q \times P}{4} - C \qquad W = Q - (C + M) \qquad S = \frac{Q \times (L - P)}{100}$$

To illustrate these formulæ Griffith employs the following example: Five ounces at each feeding, giving eight feedings. We determine that we shall give the child 3 per cent of fats, 6 per cent of sugar, and 1 per cent of proteid, using a 20-per-cent cream.

$Q = 5 \times 8 = 40$ oz.

$C = \frac{40 \times (3 - 1)}{16} = 5$ oz. $\qquad W = 40 - (5 + 5) = 30$ oz.

$M = \frac{40 \times 1}{4} - 5 = 5$ oz. $\qquad S = \frac{40 \times (6 - 1)}{100} = 2$ oz.

Five per cent of the total quantity is made alkaline with lime water, which is subtracted from the quantity of water. In this instance this would be 2 ounces. Therefore we would order:

Cream, 5 ounces.
Milk, 5 ounces.
Water, 28 ounces.
Lime water, 2 ounces.
Milk-sugar, 2 ounces.

Sometimes the result of any formula equals zero. This means that we use none of that ingredient. If a minus quantity is obtained it means we must use a stronger cream.

The child and its food must be protected from flies, which carry contagion, and which likewise produce fermentative changes in the milk. They are particularly dangerous in hospital wards where one or more cases of diarrhea already exist.

2. *Dietetic Treatment.*—The beginning of an attack of summer complaint is to be met by the withdrawal of all food, and especially milk, be the child breast- or bottle-fed. The patient is to be starved for twenty-four to forty-eight hours. This is without doubt one of our best means of controlling vomiting and of preventing further fermentative changes in the bowel. During this period, however, and throughout the attack, small quantities of sterile water are useful when administered at short, fixed periods. For plain water it is advisable, in many instances, to substitute a cereal water made from barley or rice. Albumen water does not agree with all cases,

but when it is tolerated it forms a valuable substitute for sterile water. A child can subsist on this for many days, especially when a small quantity of expressed beef juice is added to it. If stimulation is indicated it forms an admirable vehicle for the administration of brandy. In very severe cases of vomiting the child must be sustained by nutrient enemata for a period of twenty-four to forty-eight hours. After vomiting has ceased and the intestinal canal has been rendered clean and the bowel movements are improved, a gradual return is to be made to milk. It is just at this point that the greatest caution must be exercised, for an error of judgment may prove costly and even fatal. It is better to go too slow than too fast. If the child is bottle-fed, the milk can be carefully modified after the method of Baner. In renewing the use of milk start with a very weak milk mixture in which the proteid percentage is as low as ½ per cent. Great care must be taken that we do not renew the attack by an improper and hurried modification. The mixture is fed in reduced quantities and at short intervals, and is best given peptonized. Gradually the quantity is increased, the intervals lengthened, and the peptonization is omitted. As the digestive organs become stronger the percentage of proteid is very carefully increased until the mixture analyzes the same as mother's milk.

In accomplishing a correct modification of cow's milk it is essential to bear in mind that there is a distinct biologic as well as a chemical difference between it and mother's milk. This has special reference in dealing with the casein or proteid constituent of bovine milk. The coagulable proteid may be entirely omitted for the time being by feeding the child with whey, which contains the soluble elements—lactalbumin and lactoglobulin. In most instances it is advisable to start the child upon whey before administering milk at all. Where this has not been done I have obtained good results by adding dextrinized gruel, made from wheat flour, to the milk instead of water, using it as a diluent. This substance so changes the caseinogen of cow's milk as to cause it to coagulate in finer curds, which resemble those of woman's milk. The dextrinized gruel may be made after the method of Chapin, who, with Keller of Breslau, is the main exponent of this method of feeding in America. Chapin adds one tablespoonful of wheat flour to one pint and a half of water, boiling the mixture for fifteen minutes. This is followed, after cooling, by the addition of a drachm of a solution of diastase, which renders the gruel thin.

By repetition I wish to emphasize the importance of the administration of water in small quantities throughout the attack both by mouth and in a manner to be elucidated hereafter. It is indicated to allay thirst, reduce fever, diminish toxemia, and to supply the tissues with the needed pabulum which they have lost from the frequent evacuations. The post-mortem findings substantiate this view, as evidenced by the absence of fluid in the serous sacs, together with a sticky and dry condition of the serous surfaces.

3. *Mechanical Treatment.*—This embraces the intelligent use of lavage, colonic irrigation, and hypodermoclysis. By these means the therapeutic uses of water are amplified. The scope of this paper does not include a discussion of the technique of these valuable agents. This should be familiar to the practical physician. I shall content myself with naming the indications which can be overcome by their use, believing, however, that their employment as a routine measure is to be condemned.

Lavage has but one indication in cases of summer diarrhea, viz., uncontrollable vomiting. One stomach washing is usually sufficient, and there is nothing, either in the domain of drugs or in the rules of dietetics, which has such a controlling influence over this sometimes troublesome symptom.

In many cases of acute dyspeptic diarrhea, where there is evidence that undigested food or putrescible material exists in the intestinal canal, a copious colonic irrigation of normal salt solution, combined with a calomel purge and correction of the diet, is all that is required. From 2 to 8 quarts of fluid should be employed. Colonic irrigation with silver nitrate solution 1:8000 serves a useful purpose in ulcerative colitis, especially when the stools are mixed with blood and mucus. High fever in all types of diarrhea is best controlled by cold irrigations of the colon. Systemic toxemia, so common from intestinal putrefaction, is

prevented in acute cases, and cured or lessened in subacute and chronic types of the disease. Further, by this means thirst is allayed and the bowel is cleansed so as to receive and to absorb rectal medication and nutrient enemata. A certain amount of fluid may be allowed to remain within the bowel, which, being absorbed, is antitoxic, diuretic, and stimulating.

Hypodermoclysis is especially useful in cases of cholera infantum during the stage of collapse following excessive purgation. It finds its greatest sphere of activity in those appearently hopeless cases made so by urinary suppression and threatened cardiac and respiratory failure. Its employment here should never be omitted. Urinary secretion is speedily established, toxins are thereby eliminated and diluted, the pulse and respiration are frequently improved. In many cases the procedure has proved itself life-saving.

4. *Medicinal Treatment.*—The trend of modern medicine seems to be toward therapeutic nihilism, or at least in many cases to follow the so-called "expectant" plan of treatment. This is to be decried, and I presume to agree with Jacobi, in substance, that the commonwealth is robbed of many good citizens by this practice being followed too often in the domain of pediatrics. Drugs have their positive indications in the treatment of summer diarrhea, and when these are recognized medicine should be boldly but wisely administered.

In cases of acute intestinal indigestion and in the fermental type of diarrhea the symptoms are often speedily controlled by emptying the intestinal canal and removing the child from the influence of the causative factor. Purgatives combined with intestinal irrigation fulfil this indication. Of the purgatives employed castor oil and calomel have long enjoyed the confidence of the profession. In diarrhea unassociated with vomiting, castor oil, in the dose of one drachm, is indicated for theoretical and empirical reasons. It removes the offending material, and its secondary effect is constipating. In using castor oil in very young children I always insist upon a fresh sample free from all irritant qualities, as I have seen intussusception occur, with a fatal issue, in two infants under one year of age, to whom it had been administered for constipation.

In diarrhea associated with vomiting I am in the habit of administering calomel combined as follows:

℞ Calomel, gr. j;
Sodii phosphatis, gr. xxx;
Sacchari lactis, gr. xx;
Pulv. ipecac., gr. ss;

M. ft. chart. No. x. Sig.: One every half-hour.

In private and in hospital practice I have come to rely upon this combination more than upon the ordinary one of calomel and soda, for the reason that the latter is at times constipating, and that the sodium phosphate is a stimulant to the liver. It enhances the action of the calomel, which also, with the minute quantity of ipecac, controls in a measure the gastric irritability.

Having cleansed the intestinal canal, two classes of drugs are now indicated—intestinal antiseptics and astringents or sedatives. Of the former little else need be said except that their use has been attended with small success. Salol, zinc sulphocarbolate, and copper arsenite would be useful agents could we administer them in sufficient dose. The first may be given in from 3- to 5-grain doses, the second in the dose of from 1/6 to ½ grain, and the last in the dose of 1/100 of a grain. These doses are insufficient to destroy the microörganisms or to inhibit the formation of their toxins. It is a useful practice to exhibit 5 to 10 minims of dilute hydrochloric acid after each feeding in cases associated with high temperature.

Of the astringent and sedative drugs the salts of bismuth and morphine are the best. The latter should be used cautiously and only after we are certain that the intestine is empty. It is best given hypodermically (gr. 1/800) combined with atropine (gr. 1/300) to a child under two years of age. A single dose is usually sufficient, controlling peristalsis and tenesmus, quieting the nervous system, relieving colic, and stimulating the heart. Its effect upon secretions is not deleterious. Bismuth in the form of the salicylate or subgallate should be given in large doses (gr. v to xv) also, after we are certain that all offending material has been removed from the gut. The salicylate is best given in the fermental type of the disease, and the subgallate or subnitrate in the inflam-

matory forms associated with blood, mucus, and tenesmus. The preparations of bismuth are acceptable to the child when administered in one of the aromatic waters.

The medicinal measures thus far detailed have to do with the control of the diarrhea. Other symptoms require attention. Many of these have been discussed under the head of mechanical treatment. Fever is to be controlled solely by hydrotherapy, and cardiac failure should be anticipated by moderate stimulation with brandy. Should collapse present itself, strychnine and digitalis are our main reliance and should be used boldly until the indication for their use has been overcome. The indications for the use of these drugs are the same in children as in adults, and to be of use they must be given in sufficiently large doses. Personally I do not hesitate to give a child a year old 1/50 of a grain of strychnine hypodermically every two hours if it is required, believing that if an infinitesimal dose was followed by good effect, it was not required at all.

Atropine in a dose of 1/250 grain has remarkable effect in cases associated with watery stools, pinched features, a high internal temperature, and a cold, clammy surface. It is a vasomotor stimulant, overcoming the paresis of the blood-vessels contained in the intestinal mucosa; it improves the surface temperature, besides exerting its usual function as an admirable respiratory and cardiac stimulant. It should be administered hypodermically.

5. *Serum Treatment.*—Holt, in a paper read before the Section on Pediatrics of the American Medical Association at Atlantic City, in which he summarizes the clinical study of 237 cases of infantile diarrhea, concludes that thus far the results of serum treatment have been disappointing. At present there are two serums upon the market, that used against the Flexner-Harris bacillus and that used against the Shiga bacillus. He claims that to be of use at all the serum must be employed early, as soon as a clinical diagnosis has been made; that it is unsafe to wait for the bacteriologic or the agglutination test; and that of the two serums, that used against the Flexner-Harris bacillus is the best, as it acts also upon the toxin of Shiga's bacillus in a manner stronger than the latter acts upon the former. He affirms that the name infantile dysentery should be applied to those cases characterized by fever, and blood and mucus in the stools, in preference to the term enterocolitis; and also that these cases give the best results for the serum treatment. He insists also that the best results are obtained in infants, previously healthy, who are suffering from an acute infection alone, and that where the case is complicated by a previous condition of marasmus, either serum is of little or no use. For this reason hospital cases present the greatest number of failures. W. H. Park, of New York, claims that Shiga's bacillus is present only in those cases where the stools contain mucus and blood. His results with the serum treatment have been indifferent. H. M. Knox, Jr., of Baltimore, claims that but five per cent recover where the serum is employed.

The serum treatment is therefore, as far as concerns the general practitioner, in its experimental stage. While the results achieved by some workers in this field are encouraging, there is still much to be accomplished in the matter of isolating the germs and their toxins. It will also be necessary to differentiate the myriads of bacterial flora found in the intestinal canal, both in health and in disease. Until this is accomplished, and the specific organism with its toxin and antitoxin is accredited to each particular type of inflammatory and non-inflammatory diarrhea, and until we are able to substitute a bacteriologic diagnosis for a clinical one, we must depend upon our present mode of treatment for the best results.

TUBAL MENSTRUATION.

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Some months ago Dr. Bland and myself read papers before this society, in which we cited cases which seemed to indicate that the tubal mucous membrane took part with that of the uterus in the discharge of blood during menstruation. The natural position of these organs renders opportunities for their inspection during menstruation very infrequent. This fact and the importance of affording

information upon every phase of this important function must be my excuse for citing the history of the following case, for which I am indebted to Dr. M. Herman, gynecological resident of St. Joseph's Hospital.

Mrs. K. S., of Bucks County, Pa., aged thirty-six years, entered the service of Dr. Montgomery at St. Joseph's Hospital March 3, 1904, suffering from pelvic disturbance, which examination disclosed was caused by laceration of the cervix and retroversion of the uterus.

Her family and personal history were good. She has had four children and one miscarriage. For some years she has complained of pain in the right side, headache, backache, bearing down and dragging sensation in the pelvis, constant soreness over the region of the umbilicus, and obstinate constipation. She has been compelled to rest during menstruation.

The operation was performed March 10, though the patient had begun her menstruation the previous day. The operation consisted of dilatation, curettage of the uterus, an amputation of the cervix, after which the abdomen was opened in the median line and the round ligaments shortened by an operation described in the June number of the GAZETTE. Both tubes were found free from adhesions, but darkened in color. Pressure by gently milking the tube caused a few drops of blood to appear at the abdominal end. The same course produced a small, dark-colored clot. In reviewing this case, I am led to regret that this clot was not microscopically examined, as it may possibly have been associated with the ovum, and also that we did not examine the ovaries for indications of recent rupture of a Graafian follicle. The case is presented for the purpose already mentioned, to show additional evidence that the tubes are active in the menstrual process.

HYDROTHERAPY IN PNEUMONIA.

FARNSWORTH contributes a paper on this theme to the *Wisconsin Medical Journal* for June, 1904. He believes that the clinical indications which demand special attention are:

First, cough. This is ameliorated and controlled to a great extent by fomentations to the chest for from five to fifteen minutes, making the applications from one to three hours with a heating compress, in the intervals changing it when it becomes as warm as the body, when the cough is severe, and when it is less severe to leave the compress on for about ten to fifteen minutes after it has become warm. The inhalation of steam for a period of from five to fifteen minutes three or four times a day, and the keeping of fresh lime slaking in a pan of water in the room, are also beneficial. When inclined to continuous cough the patient should sip a glass of very hot water. Use great care to protect the neck and shoulders from chilling from contact with wet bedclothing. Keep the shoulders covered and warm and dry.

Second, pain in the chest, which can be relieved by the same treatment as for the cough.

Third, constipation. For constipation administer the daily enema or colon clyster.

Fourth, relieve the weak heart and feeble pulse by the cold compress or ice-bag to the heart for fifteen minutes every two hours while giving the hot hip and leg pack or while applying fomentations to the abdomen, to be followed by cold mitten friction. When in danger of collapse, use alternating hot and cold applications over the heart for five to fifteen minutes every hour or when indicated.

Fifth, gastroenteritis is to be relieved by fomentations to the stomach and bowels, or a hot trunk pack, every three hours, with a cold compress during the intervals, to be changed every twenty to forty minutes.

Sixth, cyanosis is relieved by using the hot hip and leg pack, at the same time applying the ice-bag to the heart for fifteen minutes, to be followed by the cold mitten friction.

Seventh, headache and delirium are to be relieved by using the ice-bag to the head with the hot hip and leg pack.

Eighth, hyperpyrexia is to be relieved by a cool enema, cold mitten friction or towel rub or cool sponge, or if there is a tendency to chill, by a very hot sponge.

Ninth, pain is to be relieved by hot applications to the parts affected.

The Therapeutic Gazette

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Leading Articles.

THE SYMPOSIUM ON ALCOHOL.

We desire to call attention to the symposium upon alcohol published in this issue of the THERAPEUTIC GAZETTE. The writers of the various articles have had a large experience in their particular field, and speak with the authority born of such experience. Each deals with particular types of cases, and as alcoholism, in its various forms, is met with by almost every practitioner of medicine, we believe that these articles, which have been prepared at our request, will prove interesting to the majority of our readers.

THE USE OF ATROPINE IN THE TREATMENT OF INEBRIETY.

Many of our readers will probably remember several interesting communications in our original columns which have dealt with the employment of hyoscine in the treatment of the morphine habit. One paper in particular, that of Dr. M. K. Lott, of Cameron, Texas, received a reat deal of attention, and Dr. Lott stated that he had not only employed hyoscine with advantage in the morphine habit, but that he had also used it with equally good results in the treatment of chronic alcoholism. The writer of this editorial has used hyoscine with advantage for morphinism, but he has not employed it in inebriety. It is interesting to note that in the *British Medical Journal* of April 30, 1904, Dr. McBride, of Toronto, reports a series of cases of inebriety which he has treated with large doses of atropine and strychnine, a plan of treatment which is not far removed from that suggested by Dr. Lott, for atropine and hyoscine belong to the same class of drugs and have a physiological action which is nearly related, although hyoscine is much more a sedative, and therefore apparently more useful in the condition under discussion.

The advantages of the atropine treatment of inebriety as detailed by McBride are that it is efficient and that it is not prolonged. He believes that if the treatment is properly carried out, a cessation in the craving for stimulants may generally be expected after a course of treatment lasting six weeks. Further than this, he believes that the recovery is permanent. Of this, however, we have grave doubts. He further states that the doses of atropine which he has been accustomed to employ cause no delirium. His plan is as follows, and he states that he has employed it for thirteen years with a large measure of success:

"1. Atropine sulphate commencing at 1/200 grain three times a day, increased gradually during the first week until the pupils are affected and the mouth becomes dry. In most cases 1/50 grain will be the maximum dose.

"2. Strychnine nitrate given at the same time subcutaneously in doses beginning with 1/60 grain and rising to 1/20 grain in the majority of cases.

"3. Fluid extract of red cinchona bark given every three hours in ordinary doses by the mouth.

"It will be obvious that in the administration of powerful drugs of this kind considerable judgment is required, and that in many cases it is needful to modify the above treatment. Auxiliary methods of treatment are also of great value, amongst which may be mentioned attention to the general health of the patient,

the use of warm baths, special dietary, and regulated exercise. In cases where there is delirium, or when maniacal symptoms are threatened, as is only too common in cases of acute alcoholism, other remedies may be required. Even at the risk of somewhat lowering the strength, it is generally advisable to administer a brisk purge at the commencement of treatment, in order to remove imperfectly eliminated waste products.

We think that McBride's recommendations are worthy of attention, but we would advise the use of hyoscine rather than atropine.

THE VALUE OF APOCYNUM CANNABINUM.

Many years ago apocynum was very commonly employed by practitioners in this country for the treatment of cardiac dropsy, and we understand that it is still largely used by certain practitioners of the so-called Eclectic persuasion. Many regular practitioners have probably ceased to employ it because they have failed to get the results which they expected, and so have put it on the shelf with those drugs which they are in the habit of mentally classifying as therapeutically uncertain.

We have pointed out in these columns in a previous issue that a large part of this disappointment in connection with the action of apocynum cannabinum probably depends upon the fact that apocynum androsæmifolium has been dispensed by mistake for cannabinum. Not that the dispenser has been intentionally dishonest, but because it is often difficult, if not impossible, to separate the two drugs, unless a skilled botanist assumes that responsibility. As long ago as the time of Benjamin Rush, apocynum cannabinum had a reputation as a cardiac stimulant and diuretic, and it is said that that well known physician was in the habit of calling it the "vegetable trocar," because of its remarkable powers in dissipating dropsy. Since that time physiological research has revealed the fact that the action of this drug is very nearly related to that of digitalis, which, of course, still stands *facile princeps* amongst cardiac stimulants and diuretics. The point is not that apocynum cannabinum is better than digitalis, but that it is a remedy of very great power, and that in some instances it will succeed when digitalis fails.

An examination of the literature concerning this drug reveals the fact that its use has been by no means limited to American physicians. It has been largely employed in Russia, and a number of Russian physicians have not only contributed papers concerning its therapeutic properties, but have made studies upon its influence in animals. Thus, Kostkiewicz has made a study of its influence upon the circulation in both warm and cold-blooded animals, and has also contributed a paper upon the value of the fluid extract of apocynum cannabinum in cardiac dropsy. More recently Pawinski, of Warsaw, has contributed a paper upon this subject to *Les Nouveaux Remèdes* of March 24, 1904. This author considers that the diuretic influence of this drug is extremely marked, resembling that produced by calomel and diuretin. He has noticed as great an increase in the quantity of urine as from four to six quarts a day, and quite agrees with Rush in calling it a "vegetable trocar," although, with the characteristic inaccuracy on the part of European writers who spell English names, he spells "Rush" "Busch."

Pawinski has failed to notice the unfavorable effects which some authors have reported in regard to the influence of this drug upon the alimentary canal. These effects are usually manifested only when very large doses are given, under which circumstances the drug produces active purgation and so removes fluid from the body, although at the same time it may cause some gastrointestinal irritation.

In conclusion, we wish to emphasize once more the fact that if good results are to be obtained from this remedy a fluid extract which is really that of apocynum cannabinum and not androsæmifolium must be used.

ORGANIC AND INORGANIC IRON FOR ANEMIA.

For many years much difference of opinion existed as to the manner in which iron is absorbed from the alimentary canal so that it could be utilized by the body for the cure of anemia. Within the last dec-

ade a considerable amount of light has been thrown upon the processes by which iron is absorbed, so that our information concerning this matter is much more nearly accurate than it was at one time. It has been taught by many investigators that of the various preparations of iron, inorganic salts produced the best results, and that in the majority of instances the insoluble preparations produced better results than the soluble ones. On the other hand, some physicians have endeavored to cure anemia by the administration of iron derived from organic sources, as from the blood, the liver, or even portions of the bone-marrow, with the idea that as organic iron it would be more readily utilized by the body of the patient. Opposed to them have been the advocates of the use of inorganic preparations, and much evidence has been adduced that while on its face the administration of hemoglobin might be advantageous, as a matter of fact this complex organic body is so altered before it can be absorbed that it possesses no advantages above the more old-fashioned preparations. For these reasons we have read a paper contributed by Professor Halliburton to the *British Medical Journal* of April 9, 1904. As a result of his investigations he believes that hemoglobin is a useful substance for the purpose of combating ordinary secondary anemia. Experimenting on rats with crystalline oxyhemoglobin from dogs' blood, he found that such hemoglobin seemed to increase the number of the red blood cells and the total amount of hemoglobin in the blood, and he believes that the greater portion of the absorption of the iron from the hemoglobin takes place in the extreme pyloric end of the stomach, and in the first few inches of the duodenum, the spleen being the principal organ for the storage of the iron. Halliburton, of course, recognizes that hemoglobin is not absorbed as such, but that it is converted in the stomach into acid hematin. This substance is certainly quite difficult of absorption, but is still further influenced by the pancreatic juice, which rapidly dissolves it, forming alkaline hematin, which is readily diffusible through an animal's membrane. Probably therefore the greatest amount of the substance is absorbed through the lower portion of the duodenum, where the reaction is distinctly alkaline. Still further down in the bowel, where the reaction again becomes acid, absorption probably ceases.

This research of Halliburton, which is confirmatory of a number of others which have been made during the last few years, in no way destroys our confidence in the value of the various preparations of inorganic iron, but it shows that organic iron derived from hemoglobin is of some value in medicine and is not entirely useless, as some have claimed in the past. For ourselves, we still expect to employ the old-fashioned or inorganic preparations whenever a serious anemia of a secondary type is to be combated.

THE TREATMENT OF ANEMIA IN RELATION TO ETIOLOGY.

A number of years ago no drug was more abused than iron, which, in various forms, was frequently prescribed as a tonic or roborant. With increasing knowledge of the causes and characteristics of the various forms of anemia it became evident that iron was chiefly useful in so-called secondary anemias and in chlorosis, and that in the more chronic forms of anemia it was practically useless. It also was learned that iron is practically valueless in many of the diseases in which it was at one time commonly employed, and while its use in sepsis is still regarded with favor, it is universally considered that iron cannot be given rationally unless a careful examination of the blood reveals a diminution in hemoglobin. Still more recent advances in our knowledge of the causes of many forms of anemia render it evident that secondary anemia is simply a symptom of an underlying condition, and that to cure the anemia it is necessary that the physician should by proper medication eliminate these causative factors from the case. This is particularly true of cases of anemia which develop in the South, and which are commonly the result of malarial infection. It is also a fact, which is not as yet as widely recognized as it deserves, that intestinal parasites are capable of causing grave anemia, and that throughout the Southern United States an intestinal parasite known as the *Uncinaria americana* is responsible for the alterations which take place in the blood. It will be remembered that Stiles has proved the existence of this parasite

in a large number of cases of anemia, and has shown that in certain districts the pallor and malnutrition of many of the people is entirely due to its presence. To administer iron in cases of this character without at the same time, or previously, giving thymol in sufficiently full doses to destroy the parasite is useless. Usually it is best to follow the thymol by a purgative dose of castor oil.

In a paper recently published on this subject by Dr. L. M. Warfield, of Savannah, he asserts that the anemias of the country districts are due in the great majority of cases not to malaria but to uncinariasis. He also believes that the same condition may at times give rise to a fever simulating typhoid fever or estivo-autumnal malaria. The patient should be instructed to carefully examine his stools for small, threadlike worms, and to bring specimens for examination. The treatment advised by Warfield is as follows:

"The treatment of the cases is simple and successful, although in severe cases it is necessary to continue specific treatment at intervals until the stools are free from eggs. One gives an adult castor oil or Epsom salts in the evening. There must be no food whatever given from then until noon of the following day. At 8 A.M., 30 grains (2 grammes) of finely powdered thymol is given either in capsule or with a little water. At 10 A.M. another dose of 30 grains, followed at noon by a large dose of castor oil or salts (℥ j-ij). In order to facilitate the action of the thymol some give whiskey or brandy with it, but as the combination has proved on several occasions to possess distinct depressing and toxic actions, it is safer to administer the drug in capsules or with water alone."

ENTEROSTOMY IN PERITONITIS.

An experience based on the trial of a method in forty-one cases, in a single institution—*i.e.*, presumably with a similar technique—is of sufficient importance to merit careful study at the hands of the profession; and when such a procedure seems to promise a lessened mortality in an affection notoriously fatal, it seems worthy of a trial at the hands of the operating surgeon.

In a paper based on this experience, and briefly reviewing histories of intestinal paralysis and distention incident to peritonitis, Greenough (*Boston Medical and Surgical Journal*, May 19, 1904) holds that the obstruction of the intestine in diffuse peritonitis is due to suspension or paralysis of peristalsis, which in turn is caused by inhibition, toxic paralysis, and overdistention. It may also be attributed to mechanical causes, such as inflammatory infiltration of the bowel wall or adhesions.

He strongly advocates enterostomy in the graver forms of diffuse peritonitis, since thus the gases and decomposing contents of the bowel are drained, and relief of paralysis of peristalsis is obtained —*i.e.*, overdistention is removed. Moreover, thus the bowels can be subjected to lavage, and there can be introduced stimulants, nourishment, fluids, and cathartics.

Greenough advocates the use of the Mixter tube in the performance of these operations. It should be applied to the cæcum. He notes that spontaneous closure of the resultant fistula may be expected if the opening is kept below the level of the parietal peritoneum. He has apparently shown that by a systematic use of enterostomy in the graver forms of diffuse peritonitis the number of patients dying on the second, third, or fourth days after operation is reduced. Attention is drawn to the fact that visible peristalsis and spasmodic pain in intestinal obstruction always indicates a mechanical cause for the obstruction, and that the persistence of symptoms, unrelieved by enemata and cathartics, is an indication for operation. Under such circumstances, enterostomy, if indicated, should be applied to the part of the intestine nearest above the obstruction.

As to the statistics of this operation, in the Massachusetts General Hospital, in the last four years, forty-one cases of diffuse peritonitis were treated by enterostomy, in addition to other operative measures. It was done as a first operation in twenty-four cases, of which five recovered. In seventeen cases it was done as a secondary operation; one case recovered. Multiple incision, irrigation with salt solution, and drainage, were employed in the majority of the cases. Although a superficial glance at these

figures is not convincing as to the value of enterostomy, a closer study and comparison with other measures apparently show that the method was distinctly serviceable in lessening the mortality of a complication which is usually regarded as fatal.

The method of performing this operation by the Mixter tube is very simple. The latter is of glass, bent at a right angle, about one-half inch in diameter, and provided with a flange and a collar, about a quarter of an inch apart, at the lower end. A purse-string stitch is introduced in the intestine, and in its center a linear incision half an inch long is made parallel with the long axis of the bowel. The flanged end of the tube is inserted into the bowel, and the purse-string stitch is tied under the collar, thus preventing leakage, but securing the tube in place. The end of the purse-string stitch is then carried through the parietal peritoneum, just below the margin of the abdominal wound, thus securing the opening below the level of the abdominal wall. A rubber tube is attached to the outer end of the glass tube and conducted through the dressings to a receptacle beside the bed.

ABSCESS OF THE LIVER.

It has long been recognized from a diagnostic standpoint that abscess of the liver is a common complication of amebic dysentery, being frequently encountered in the tropics, and rarely in the United States, yet not so rarely but that large clinics will present one or two cases during the course of a teaching year. From statistics furnished by autopsy it has been calculated that from 20 to 35 per cent of those perishing from dysentery exhibit abscess in the liver. A study by Rhoades, corroborated by Craig, based on an experience gained in working with our troops in Manila, shows that about five per cent of dysenteric cases may be expected to develop hepatic abscess. It is a well known fact, perhaps incident to the comparative rarity of the affection in this country, that the great majority of these cases are not recognized as such during life. Rhoades shows (*Annals of Surgery*, May, 1904), however, that diagnosis is comparatively easy, since among seventy odd cases that died from dysentery, but one of liver abscess found its way to the post-mortem table because of wrong diagnosis, and that was a suspected case; an unwarranted dependence upon the aspirating needle as a diagnostic means, however, led to delaying decisive action until the patient succumbed to pleural rupture. During this period twenty-four cases of liver abscess were operated upon.

Among the symptoms which characterize typical abscess seen in the early course of the disease are a history of dysentery contracted in the tropics, accompanied by loss of weight, drawn features and ashen complexion, general lassitude and dragging pain about the liver, increased liver dulness as demonstrated by percussion, associated with an area of tenderness, a rise of temperature in the evening to 100° in the purely amebic type, and to 102° in a case of mixed infection. The corresponding morning temperature is from 98° to 99°. There is an evening pulse of 95 to 110, with morning beats of 72 to 85. There is moderate leucocytosis. The hemoglobin estimation is given as 70 per cent; the red blood cells run 3,500,000. The subcutaneous veins over the hepatic area are dilated. There is neither jaundice nor splenic enlargement, nor friction sounds over the hepatic area, nor bulging of the chest wall, nor local edema. Cough is not a symptom. Basic pneumonia is not present, and there is no dyspnea. The skin is moist, the tongue coated. The bowels are constipated or unduly loose. The urine shows traces of albumin and at times casts. These patients are generally ambulatory, but are crippled for active service.

Later, if the patient has not in the meantime perished, the enormous enlargement of the liver, friction sounds over the hepatic area, bulging of the right chest wall and dry cough, localized edema, basic pneumonia and shortness of breath, constitute a symptom-complex which makes diagnosis a simple matter. It happens, however, that the majority of cases perish before these symptoms become obvious, hence the importance of Rhoades's communication, since these abscesses when single are perfectly amenable to surgical treatment.

Rhoades holds that pain in the right shoulder, radiating into the side of the

neck, gnawing and aching in character, which has been so frequently named as a symptom of hepatic abscess, is of rare occurrence, being experienced only when the abscess is near the base of the gall-bladder or in the posterior and inferior border of the right lobe near the transverse fissure, regions in which these abscesses are not common.

Reports on Therapeutic Progress

THE GOUTY STATES.

In the *Postgraduate* for May, 1904, SATTERTHWAITE states that in the management of an acute case of gout, taking podagra as an example, the inflamed part should first of all be elevated, and placed in a comfortable position. If the patient is sitting up, the leg may be put on a firm support. A folded pillow under the knee, maintaining the limb in a fixed position, enables the joint to be a little bent, which is usually agreeable. If in bed the limb should be protected from the weight of the bedclothes by a cradle. As for local applications, individual preferences merit consideration. Usually the old-fashioned lead and opium wash, now happily supplanted by a solution of morphine in lead water and alcohol, is found to be the best of the external lotions. The following is a good formula:

Dilute alcohol, f℥iij;
Lead water, f℥j;
Acetate of morphine, grs. x.

M. Apply it on absorbent cotton, cover with oiled silk, and renew every four hours. Or, in lieu of it, use a saturated solution of the bicarbonate of sodium.

For those who do not mind an oily application, the following is to be recommended:

Guiacol, f℥ss;
Oil of wintergreen, f℥ss;
Olive oil, f℥ij.

M.

Guaiacol is readily absorbed by the skin and is said to reduce the temperature.

A more elegant mixture, however, is:

Menthol, ℥j;
Alcohol, f℥iv;
Glycerin, f℥j;
Cherry laurel water, f℥j.

M.

At one of our American baths the patient is put during this stage into the tub at 98° to 100° F., kept there fifteen minutes, and then douched with water at 102° F. for another fifteen minutes. Afterward the flabby parts of the body are massaged, the inflamed joints being untouched. A mercurial purge follows, and later a saline cathartic, while the salicylate of lithium or colchicum, or the iodide of potassium or sodium, is used until the subacute stage has been reached, when they are abandoned for dietetics, hygienic and balneotherapeutic methods. It is thought, however, that success if attained is due to the drugs rather than to the hot water and massage.

Some patients prefer no applications, even of cotton, to the joint. It may also be necessary to give morphine hypodermically in ¼-grain doses to relieve the pain. Phenacetine or lactophenin in 5- to 10-grain doses will give some relief, but they are rarely effectual in sharp attacks. As soon as possible the wine of colchicum should be given in doses of from 15 to 30 minims every four hours, alternating with salicylic acid or the salicylates of sodium in 15-grain doses, also at intervals of four hours. It is believed that the disease will, under this treatment, be aborted. As soon, however, as the colchicum has accomplished its object so far as to relieve the pain, the dose of both colchicum and salicylates may be diminished to one-half, and later to one-third. Colchicum, as is well known, is apt to produce gastrointestinal disturbances, reduce the frequency of the pulse, and at times cause symptoms of collapse. Its action on the kidneys is variable. For these reasons its administration should be carefully watched. Colchicum probably derives its benefit from its action as a laxative, perhaps as a cholagogue. The author gives it with 1/100 grain of nitroglycerin, which dilates the vessels, while it acts as a cardiac stimulant. If salicylic acid or the salicylates are not well borne, he gives the citrate of potassium in 30- to 60-grain doses every four hours. One should lose no time, however, in giving a mercurial purge as soon as practicable. It relieves portal congestion, and so tends to the elimination of uric acid or the purin bodies.

After the mercurial has produced a full fecal discharge, the cholagogue effect may

be kept up by podophyllin, aided by colocynth. A pill that accomplishes this object consists of:

Resin of podophyllum, gr. ½;
Extract of colocynth compound, gr. j;
Extract of hyoscyamus, gr. j,
Extract of nux vomica, gr. 1/6.

M. Give one every night if necessary.

Notwithstanding that opiates may and often do derange the digestion, and retard a metabolism that is already faulty, it is the writer's habit to give them if sleep cannot be obtained by sulphonal, trional, or similar hypnotics.

THE LOCAL USE OF QUININE IN HAY-FEVER.

FULTON writes to the *Medical Record* of June 25, 1904, on this topic.

So many remedies have from time to time been proposed for the relief of hay-fever that subjects of this peculiar malady have become very skeptical as to their value; and very naturally so, for they all have one serious drawback—the uncertainty of their action.

The writer offers a method of using quinine locally in typical cases of hay-fever, which has proven remarkably successful in his hands. The treatment consists of the employment of a saturated solution of the quinine sulphate in sterilized water, as a nasal spray, and the application to the mucous membrane of the nares of an ointment consisting of quinine and vaselin in the proportion of thirty grains to the ounce, the applications being made every four to six hours. After trying various unguents and combinations, he has found simple vaselin to be the best. The white vaselin is not suitable, nor is the liquid vaselin. Lanolin is an ideal base, but is too offensive to the sense of smell. The use of the spray alone will not suffice, but should be used as an adjunct to the ointment. Spraying the nares will at once stop all symptoms of coryza, but the effect will not be maintained long unless followed by the thorough application of the ointment. This may account for the failure of this treatment as first suggested by Helmholtz, who employed only the spray. The application of the ointment should be made at least every six hours, nd it may be necessary to repeat it every four hours. An application at bedtime, and at two or three o'clock in the morning, will prevent all symptoms through the night. Two or three applications of the spray should be made in the twenty-four hours, at the times when the patient has found the irritation to be at the maximum degree of intensity. In respect to the mode of using the ointment, the little finger is the most convenient applicator.

As far as the effects of this simple remedy have been observed, the results are as follows: Used according to the foregoing suggestions the symptoms of coyza are immediately removed, nor will they return as long as the treatment is continued. The usual accompanying irritation of the conjunctivæ, of the Eustachian tubes, and palate quickly subsides. Opportunities have not been had so far to test this treatment in irregular types of the disease, or to estimate how far these results may be modified by individual peculiarities, but so far as its effects have been noted it seems fair to conclude that hay-fever subjects will find this a remedy of actual value, and that it will promptly and completely relieve a large proportion of these cases.

THE TREATMENT OF TABES DORSALIS AND ITS PROGNOSIS.

FAURE writes in the *Lancet* of June 18, 1904, upon this theme, and makes several emphatic statements as to his views. He asserts that it is indisputable that no tabetic gets well solely on account of the quantity of iodine or of mercury which he absorbs, and that aggravation of the disease is more frequent among tabetics who are put on an antisyphilitic treatment in increasing doses than among those who are not treated in this way. It is necessary to avoid attributing exclusively to the action of heroic remedies such as mercury the relaxations and the diminutions in the symptoms of disease which are sometimes observed in the majority of cases of tabes, for such ameliorations are the rule, and it is incorrect to say that locomotor ataxia must be a disease which is necessarily and invariably progressive (Brissaud, Joffroy, Raymond, Marie, Ballet, and others).

The disease is steadily progressive in a third of the cases. It is arrested, improved, or gets well in about a fourth of the cases, and in the remainder it proceeds very slowly with periods of quiescence, only affecting the life of the patient seriously on occasions, and during the rest of his life offering him the possibility of living a life the activity of which doubtless must be diminished, but which is by no means very uncomfortable, and is markedly different from the average life which used to be supposed to be the only one in view for a tabetic; and this life may go on for a long time, for by statistics collected at Berlin, La Malou, and Bicêtre it appears that the duration of life of a tabetic is very nearly the same as that of a normal patient (Leyden, Belugou, Faure, and P. Marie).

Why, then, are the present prognosis and that formerly held so different? For many reasons. First, it is obvious that in the present day nearly all medical men know how to diagnose tabes in its very early stages, whereas in former years the diagnosis was only very rarely made. As the patient is made the sooner aware of his malady by so much is he the sooner treated. Secondly, the very general employment of the treatment by mercurials and iodides of syphilitic patients is probably a reason for the diminution in the evolution of tabes, which may be called the daughter or niece of syphilis (Babinski, Leredde). And thirdly, because a tabetic patient nowadays is treated as a tuberculous patient, and so many other patients suffering from chronic diseases, so that he does not sit down with his hands folded and resign himself without a struggle to the fatal sentence which used to be pronounced against him as soon as the diagnosis of tabes was given. The tabetic takes care of himself, that is to say, just as a tuberculous patient does; he modifies his mode of life, he gives up certain periods to treatment, he regulates his affairs, and no longer carries on his work as a normal man but as an individual—in short, he makes terms with his enemy and sacrifices a little to gain much. He lays down a special regimen for himself, and so is enabled to economize his life, so to speak, and to make the smallest demands possible upon his vitality. The physician who undertakes the care of a tabetic patient should map out his code of directions so as to attain the mean between two extremes. (1) He must not allow the patient to think that there will be a complete and radical cure within a few months, or that there is any specific remedy for his disease; but (2) he must not allow his patient to abandon himself to his lot as one without hope or to think that his disease is inevitably tending toward death, for such is not the case. The physician should further inform the patient that the disease from which he is suffering will in all probability not get any less during his life, that it will diminish his capacity for work, and will be the cause of suffering and of discomfort, but that on the other hand the watchful care of the medical attendant and the willing coöperation of the patient will to a great extent avoid the occurrence of possible complications. Finally, he must tell him that tabetic patients have been known to get quite well.

As a matter of fact, the arrest with the persistence of the abolition of the patellar reflex, or of Argyll-Robertson's sign, or of any other symptom without importance, has the same value for the patient as a cure. Besides this the medical man must attend carefully to the state of the patient's bladder and see that it is washed out; he must prevent the accumulation of fecal matter in the intestines, which so commonly occurs in tabes; he must keep a watchful eye upon his patient's nourishment and sleep, and see that he is not underfed and that he does not suffer from insomnia; he will order him to live as much as possible in the open air, and will protect him from overwork, either mental or physical; and finally, he will watch with care the condition of the circulatory system. By doing this the physician will be in the way to combat most of the causes of death which supervene in tabes. Moreover, while this long watch is being kept the physician must remember to order such drugs as may be suggested by circumstances.

The physician should besides impress upon his patient the necessity for taking an annual "cure" of one or more months' duration, during which the patient residing in a sanatorium should devote himself entirely to the task of repairing the damage already caused by the disease and

to putting himself into a condition to resist the attacks of complications which may be expected to occur. During this therapeutic retreat the patient should by means of special exercises learn how to train his respiratory system, as it is owing to defects in this that a tabetic patient suffers from respiratory crises, such as attacks of suffocation, of bronchopulmonary infection, or of hemoptysis. He must also train his excretory system so far as regards urination and defecation. He will also find that he will greatly improve and possibly will recover altogether his powers of voluntary movement over which he may have completely lost control. During the period of retreat he may also submit himself to a special hygienic course of thermal hydrotherapy, and finally must employ all the methods which experience has already shown to be useful in cases of tabes.

But the continuity of the treatment must be maintained not for a day, or a week, or a month, but throughout the years. After years of strict care and of watchful medical surveillance the tabetic patient will find himself a changed man. Even though he does not recover the integrity of all his functions, yet he may at least make sure of the prolongation of his life, of being able to do some kind of work, and to have health and strength sufficient to enable him to lead a useful and interesting life. It is by following these directions that the physician will find himself in a position to give in a case of tabes a prognosis which, if not absolutely good, is yet quite bearable in the majority of cases. [We fear this is an optimistic view.—ED.]

THE PROPHYLAXIS OF OPHTHALMIA NEONATORUM.

The *Northwestern Lancet* of June 15, 1904, contains an article by THOMAS upon this ever important subject. While many views have been held as to the most efficient and least harmful way to prevent the occurrence of ophthalmia neonatorum, to Bischoff, of Basel, belongs the credit of first introducing a systematic method of treatment for the prevention of this disease. He washed out the vagina before delivery with a solution of carbolic acid, and instilled into the baby's eyes a few drops of a solution of salicylic acid. The use, however, of antepartum intravaginal antiseptic douches of all kinds has now become deservedly unpopular. They make the mucous membrane dry and thereby retard the delivery, which is enough to condemn their use, for the longer the child's head remains exposed to the vaginal secretions the greater the chance of the eyes becoming infected. Furthermore, it has been found by many investigators that vaginal douches, such as are commonly employed in obstetric practice, are rarely if ever effective in destroying all the intravaginal bacteria. There are, however, much simpler and far more efficient means.

Though the value of solutions of silver nitrate had long been known in the treatment of gonorrheal and other blennorrheal inflammations of the conjunctiva, its use as a prophylactic against ophthalmia neonatorum was never employed until twenty years ago by Credé, of Leipsig. His routine has always been to wipe the child's eyes carefully with a clean towel wet with some mild antiseptic immediately after delivery, and then to instil one or two drops of a two-per-cent solution of nitrate of silver. This was often done before even the cord was cut. If there was good reason to fear infection from a suspicion of gonorrhea in the parent, a second instillation was made on the next day. As a result of this simple procedure the number of cases of ophthalmia became reduced in Credé's practice from ten per cent to less than half of one per cent. In all the larger maternity hospitals of Europe and America, where this method has now become the rule, the same success has been attained. In New York and in Boston, where several thousand children are born a year with dispensary physicians in attendance, and where the Credé method in some modified form is absolutely required, the percentage of cases of this disease is less than one per cent, and this in spite of the squalid and unhealthy surroundings. The attending physician must blame himself if ophthalmia ever develops.

Much has been said against this use of silver nitrate. It is claimed by some that it is itself liable to set up a hyperemia of the conjunctiva, thus rendering it more susceptible to infection. There is small

proof of this, however, and in the hands of those who have had the greatest experience with the nitrate of silver in this way there has been no harm reported. On the contrary, they claim that no harm ever comes from its use. The important discoveries of late years of certain organic compounds of silver, such as nargol, argonin, and protargol, should put an end even to these objections, for they are comparatively unirritating and reasonably efficient. An obstetric bag should be no more without one of these solutions for the baby's eyes than it should be without some antiseptic for sterilizing the hands.

But the instillation of a few drops of any of these collyria is not all that should be done to make the prophylactic treatment complete. Though these solutions may destroy any germs that have found their way into the conjunctival sac during birth, they can have no effect in destroying bacteria which may be left on the child's skin, particularly of the lids, face, and hands, from which infection may subsequently be carried to the eyes. It is important, therefore, when the infant receives its first bath, that the face and hands are carefully washed and then wiped with a towel wet in some mild antiseptic. The face should be carefully cleaned first, and never dried with a towel that has been used before on the body. In view of the fact that an ophthalmia may be set up by infection carried from the face and hands, it seems more reasonable to apply the drops in the eye after the completion of the bath and the sterilization of the skin around the eye, instead of before this time, as it is generally used and as recommended by Credé and his followers.

The Ophthalmological Society of Great Britain, in consequence of the great danger of ophthalmia neonatorum, and the well known want of care in its prophylaxis shown by many doctors and nearly all midwives, have recommended that more attention to this disease should be made a legal requirement. Much has been written about legislative enactments to control the occurrence and proper care of these cases; but nothing definite has been done and probably never can be. But the prophylaxis of ophthalmia neonatorum is slowly becoming a practice so generally used and the laity is being made ac-quainted with its value to such an extent, that doctors who do not employ it are in constant danger of malpractice proceedings against them. In view of the effect of the prophylactic treatment of this disease, to have a case of ophthalmia neonatorum not only suggests a want of care on the part of the attendant, but also endangers his reputation should the disease result in visual impairment or blindness.

A STUDY OF THE EFFECT OF BORAX AND BORIC ACID ON THE HUMAN BODY, WITH PARTICULAR REFERENCE TO THEIR USE AS A FOOD PRESERVATIVE.

We have published from time to time articles bearing on this topic. DIGHT reports an investigation of this substance in the *Northwestern Lancet* for June, 1904. His conclusion is that on the digestive juices and on digestion, borax and boric acid in any moderate amount exert no ill effect, but in some parts of the alimentary canal accelerate digestion, and that the effect of borax and boric acid, when ingested in quantities such as would be taken in meat, is not that of an irritant to the mucous membrane of the stomach and intestines; neither are they irritants to the cells of the body generally.

Borax is such a mild laxative as to be almost wholly lacking in irritating effect on animal tissues in moderate amount. The strength of its alkalinity, tested by titration with an acid, the author finds to be a trifle less than that of bicarbonate of soda, and this latter alkali is so weak that it is applied as a domestic remedy in the form of pure powder to fresh burns and to abraded surfaces.

Dr. Oscar Liebreich has shown that a .5-per-cent solution of borax applied directly to the interior of the living stomach of the dog causes no structural change in the cells that line its mucous surface—the gastric epithelia—and a stronger solution does not affect the intestinal epithelia. This is a stronger solution of borax than would likely exist in the human stomach from eating boraxed meat. The writer has himself taken at one dose into an empty stomach three grammes (46.29 grains) of borax in a one-per-cent solution in water without any feeling of dis-

comfort following it, and no symptoms whatever were produced.

Boric acid, likewise, is one of the mildest acids known, being in this respect comparable to the carbon dioxide of the soda-water fountain, or of our exhaled air. It is a sedative to irritated and inflamed surfaces, and hence is used in inflammation of mucous membranes, especially of the urinary tract, being given internally, and is often applied locally in the cavities of the body, and to fresh wounds and to ulcers in its full strength in the powder form.

Dr. Liebreich found that a 5-per-cent solution of boric acid applied directly to the cells that line the interior of the stomach produced no irritation and exerted no injurious action whatever, while a 5-per-cent solution of common salt he finds exerts an inflammatory action on these mucous surfaces.

Borax and boric acid cannot therefore be regarded as irritants to the tissues in such quantities as might be taken in meat preserved by them. To show their non-irritating action as contrasted with the decidedly irritating effect of condiments and certain foods habitually taken into the stomach, the author has presented in his paper a series of diagrams made of the human eye, showing how it is irritated and becomes congested by the application to it of these substances.

MANAGEMENT OF FEVER IN CHILDHOOD.

MURRAY in the *Medical News* of June 18, 1904, gives the following advice. He believes that in no class of cases that a physician is called upon to treat are the results more satisfactory than in those due to products of fermentation, when the intelligent coöperation of the parents or of a trained nurse can be secured. If the parents themselves are lax in discipline, and are unable to govern the child, an efficient trained nurse must be secured, into whose hands the exclusive management of the child should be placed. The essential part of the treatment is that relating to diet. It has been the writer's practice to clear the digestive tract of all fermentative products. Then keeping the fever under control by cold sponging, ice-cap, or rectal irrigation, he proceeds to combat the toxemia by stimulating the organs of elimination, viz., the kidneys, bowels, and skin.

The author does not believe that in all cases all food must be stopped, but on the contrary he does believe that the patient should be sustained by proper food. A small amount of peptone is absorbed both in the stomach and rectum. In moderate fevers some sugar is absorbed, also albumen, and fat in but small quantities, because of its tendency to become acid; starch finds the saliva more or less diminished, thus its amounts must be carefully estimated. Given in undue quantity it may result injuriously by acting as a mechanical irritant, and give rise to fermentation. ' In ordinary fevers the food must be liquid and rather cool; in vomiting, cold; in respiratory diseases, warm; in collapse, hot. The best feeding time is the remission. In intermittent fevers nothing should be given during the attack except water, or acidulated water, with now and then an alcoholic stimulant. The scheme suggested by Dr. Coit for feeding children from twelve months to two years of age who are suffering with fever seems to be a very accurate and simple way in which to manage the diet in these conditions, viz., when the evening rectal temperature is 100° F. or above it no food except milk containing fat two per cent, proteid one per cent, sugar five per cent, should be employed; or better still, cut down the regular formula which the child is taking according to this plan, which should be advanced in a progressive series: First, boiled regular milk 3 ounces, then 4, then 5, then 6, then 6½; boiled water 2 ounces, then 2, then 1, then 1; lime water 1 ounce, ½ ounce, then ¼.

When the evening rectal temperature is below 100° F. advance one step in the above plan each day until full-strength milk is again used. When the evening rectal temperature is steadily below 100° F., yet above normal, allow only, besides the milk, bread and butter with first, third, and fifth meals, and broth and dextrine biscuit with midday meal.

When the evening rectal temperature is steadily normal allow cereals and sterile cream with first and fifth meals, and when this is well borne add to the midday meal gradually, first starchy vegetables, milk puddings, green vegetables; then eggs, white meats, and finally red meats.

The author calls attention to the following as one form of fever which defies both medicinal and hydrotherapeutic measures of treatment: Inanition or starvation fever is a condition depending upon insufficient feeding or lack of assimilation. It is common in early infancy, and would undoubtedly be much more frequently recognized were the temperatures of infants taken more often. It usually develops under one of the following conditions: First, when a child refuses all food, whether from the breast or bottle, or can be made to take only so small an amount that it is not enough to support life. Second, when the food given is entirely inadequate, as when a child is nursing upon a dry breast, or one in which the milk supply is so scanty that it gets practically nothing. Third, when the character of the food is improper. Fourth, when the infant at birth has such feeble powers of digestion, because it is premature or delicate, that it is unable to digest and assimilate enough of the food given to sustain life. Fifth, when a sudden change of food is made to one so difficult of digestion that the child is unable to assimilate it. This may happen after sudden weaning.

DIGITALIS IN HEART DISEASE.

Editorially the *Medical News* of June 18, 1904, has this to say about this important subject:

There is no doubt that digitalis employed in mitral regurgitation with symptoms of loss of compensation is often an extremely helpful and always a very satisfactory drug. On the other hand, any one who has seen the uncomfortable effects produced by digitalis in cases of aortic regurgitation, in young persons with hypertrophy of the left ventricle, especially where patients are still able and are allowed to be around on their feet, will realize how much harm may be done by its use in heart disease without proper selection of cases. It may be said at once that to suggest its use simply because there is a murmur present, and because perhaps the patient is nervous as the result of having recently been informed by an insurance examiner, or after some other reason, that he has heart disease, is almost sure to be harmful.

The typical cases in which digitalis does good are those suffering from chronic mitral endocarditis due to rheumatism. In these cases, if both the aortic and the mitral valves have become affected, as sometimes happens, then digitalis does good notwithstanding the fact that in simple aortic regurgitation it is usually contraindicated. These cases, however, are seen typically in young persons, before there is any degeneration of arteries. Whenever there are sclerotic changes present in the arteries, as is typically the case in most instances when aortic disease develops, then digitalis is always contraindicated.

In stenotic conditions at the various valves digitalis would seem to be nearly always a dangerous drug. With regard to mild amounts of stenosis at the mitral valve there may be some doubt in the application of this as a general rule. In aortic stenosis, however, there can be no doubt, as the increased action of the left ventricle produced by digitalis when exerted in the direction of the already blocked path, through which all the blood in the body must pass about twice a minute, is sure to produce overdistention of the cavity with degenerative changes in the muscular fibers and dilatation rather than compensatory hypertrophy of the heart. When there is considerable amount of stenosis of the mitral valves the same thing would seem to be true, since the auricular fibers are much less capable of hypertrophy for the purpose of overcoming the resistance that the blood-stream encounters at this orifice. Some stenosis here, however, probably exists with every regurgitation, and the indications are not so absolute.

In general it may be said, however, that the most important factor in any successful therapeutics of heart disease, whether it be by the use of digitalis or any other remedy, must always be considered to be absolute rest for the patient. It would seem especially unfortunate to use digitalis freely at times when patients are around on their feet and using practically all the strength they have, when they should be resting quietly in bed and giving their hearts the indispensable op-

and the overwork which have caused the break in their compensation. It is the neglect of this precaution that, especially in the early and often quite tractable forms of mitral heart disease, is the true cause for complaints on the part of physicians of the failure of digitalis to give relief. There is another cause in the neglect of proper regulation of diet and due attention to intestinal evacuation which must be the first step in any treatment of heart conditions.

One of the greatest clinical teachers here in America once impressed this lesson upon his class by demonstrating a patient in whom both mitral and aortic regurgitation were present, with, in addition, some leakage of the tricuspid valve. Heart compensation, which had at one time in the patient's history been quite satisfactory, was completely broken down. The professor said: "You see how serious is this case. Of course we shall put him to bed and require him to rest there absolutely—that is, not allowing him even to sit up to eat or read. We shall make his diet bland and as unirritating as possible, and it shall consist mainly of milk, which fortunately he likes very well. We shall keep his bowels freely open and shall remove all sources of worry, as far as possible, from him. Of course we must give him medicine, otherwise he would be sure that nothing was being done for him. We shall prescribe for him ten drops of compound tincture of cardamom every two hours for the next week, and I shall show him to you at the end of the week and you will see how much he has improved." The event justified his prophecy. The lesson was too precious ever to be forgotten.

THE TREATMENT OF CEREBROSPINAL MENINGITIS.

In the *Medical News* of June 4, 1904, KOPLIK deals with this important subject. He thinks that the more we study the methods of treatment pursued in the management of cerebrospinal meningitis, the more we are led to the conclusion that the disease, very much like pneumonia, is a self-limited one, and that all we can do is to relieve the suffering of the patient and treat the complications. The results nected with the severity of the epidemic, and that of the infection in the various epidemics. Thus, in an epidemic in Oporto there is a record of 56 deaths in 91 cases, a mortality of 62 per cent. In other epidemics the mortality has been quite low, 25 per cent, and in others higher than this percentage, as may be seen by referring to the section on mortality. And still in these epidemics very much the same treatment has been pursued, if we except one procedure, viz., that of lumbar puncture.

Much has been expected of lumbar puncture, and still, it must be said, comparatively little has been realized from it, in a therapeutic sense. Seager, in recording the mortality and treatment observed by him in cases of epidemic cerebrospinal meningitis, shows that by simple lumbar puncture 9 cases in 20 died, a mortality of 45 per cent. In the treatment by baths, 60 per cent died. He then gives the statistics of the last procedure, that of lumbar puncture followed by the injection of a number of cubic centimeters of a one-per-cent solution of lysol. Of 31 cases treated by such an injection into the cerebrospinal space, 13 died, a mortality of 42 per cent. In the same clinic where Seager observed these procedures, 7 cases were treated with an injection of oxycyanide of mercury, and 4 died. Neither of these procedures prevented relapses in the cases observed by Seager, and these were quite frequent. In the epidemic in Oporto, 26 cases were treated by simple lumbar puncture; of these 8 died, a mortality of 30 per cent.

In considering the benefits of lumbar puncture in an epidemic of cerebrospinal meningitis, there are some, such as Osler, Wentworth, Concetti, Travers Smith, and others, who think that this procedure is of decided benefit to the patient, inasmuch as headache and delirium are often relieved.

From the author's experience, which has been considerable, he cannot say as yet that lumbar puncture is curative. Indeed, it cannot prevent relapses, as he has proven to his satisfaction in cases in which the temperature had dropped after lumbar puncture, remained normal for a week, and then, without any apparent cause, a new attack was inaugurated. The

quite clear and sterile, possibly on account of the paucity of microörganisms, became very turbid again, and there recurred an intermittent curve, lasting over three weeks.

The author has observed the temperature to rise after lumbar puncture, and the patient on the surface did not seem to have been benefited; but on a close study of the cases he has found that the temperature is not a guide as to the efficacy of the procedure of lumbar puncture. Lumbar puncture certainly relieves symptoms of pressure, for in older children who can describe their sensations there is much relief after the withdrawal of 40 or 50 cubic centimeters of fluid from the cerebrospinal canal. In fact, in one case, the author recalls a little patient of twelve years who actually requested (so severe was the headache) that the procedure should be repeated, inasmuch as it was the only thing that gave her relief. Therefore, if the irritability is great and headache is severe, as may be judged even in children by the rational symptoms, lumbar puncture is indicated.

Again, if rigors are frequent, lumbar puncture is certainly indicated, inasmuch as a certain amount of purulent exudate is thus withdrawn in the same sense as it would be indicated in a pleurisy.

Lumbar puncture is inefficient in certain types of cases, in which there is extreme retraction of the occiput, rigidity, and even opisthotonos (basic meningitis). In some of these cases introduction of a needle is attended by no results—that is, there is a dry tap. It has been shown that in these cases there is danger of sudden dilatation of the ventricle, and what might have been relieved by the only procedure known in medicine, lumbar puncture, fails in the very cases in which it is most needed.

Again, lumbar puncture gives us a very good idea, in a prognostic sense, of the future fate of some cases. Where the cerebrospinal fluid is thick and purulent, and flows slowly from the cannula, the prognosis is grave. The author has not succeeded in saving any of these cases. Particularly encouraging are the cases in which the fluid obtained by lumbar puncture is of a cloudy appearance, at most showing a straw color.

In a procedure in which so little is known as to its efficacy, it is to be expected that all sorts of modifications should have been suggested—that is, the injection of chemicals or antiseptic fluid, such as lysol and the oxycyanide of mercury. None of these procedures seem to have lessened the mortality.

Koplik's treatment has consisted simply of a lumbar puncture whenever indicated by high temperature, continued excessive irritability of the patient, stupor, constant headache, and delirium or rigors. Following out this procedure, we have felt that we had at our disposal a very excellent method, not only of relieving these symptoms, but of relieving pressure on the vital organs, the brain and cord, at the same time withdrawing from the cerebrospinal space a certain amount of purulent fluid. In view of the fact that the bacterial life of the meningococcus seems to be a self-limited one, it is doubtful whether the procedure of lumbar puncture has a direct influence in shortening the disease. In younger infants and children, however, repeated lumbar puncture might aid materially in preventing certain complications, such as hydrocephalus following cerebrospinal meningitis, which, as we all know, is a very serious consequence with which to be confronted. Therefore by relieving the pressure we may possibly prevent in these young subjects a tendency which is present to dilatation of the ventricle and the accumulation of fluid therein.

The author's experience with lumbar puncture has been quite extensive, and he has never had an accident which could be attributed directly or indirectly to the procedure. The method of performing lumbar puncture has followed closely that advised by Quincke. If Koplik is unsuccessful and obtains what is known as a dry tap, he repeats the puncture in another space, but has not gone further than this. In several cases the primary puncture was followed by quite a profuse hemorrhage. Quincke thinks that this hemorrhage can be traced to the puncture of veins in the subdural space. In none of the cases in which hemorrhage occurred were any ill effects noted to follow. In fact, the cases in which hemorrhage occurred made a good recovery without paralysis of the lower extremities.

A peculiar symptom, not noted else-

where, is that of a desire to urinate at the time of the entry of the trocar in the cerebrospinal space. This, however, is only momentary, and disappears as soon as the trocar is withdrawn.

As to the number of times which a case should be punctured, there is, of course, no set rule. If the temperature remains down after a puncture, and the irritability and headache are not very marked, it is well to hold our hand. If, however, there is a subsequent rise of temperature, we may puncture, though certainly not more often than at intervals of four or five days.

As to the quantity of fluid withdrawn in every case, this will vary. In some cases the fluid flows very rapidly from the cannula; it is quite clear, or slightly turbid, and in a very short space of time 70 or 80 cubic centimeters is withdrawn before there seems to be a relief of tension, which is judged principally by the rapidity with which the fluid flows from the cannula. If the fluid flows slowly, drop by drop, he rarely withdraws more than 30 cubic centimeters at a sitting.

SCURVY IN INFANTS.

This, by no means rare, state is discussed by CHENEY in the *Medical News* of June 4, 1904. In regard to treatment he thinks that just three measures are indicated for the cure of scurvy: (1) Discontinue the proprietary food. Substitute for it a mixture of fresh milk diluted with water or with oatmeal water. (2) Give fresh orange juice, in dose of one or two teaspoonfuls three times a day. It is surprising how babies with scurvy take to this and seem to enjoy it. (3) Give freshly expressed beef-juice, squeezed from rare steak, in dose of one or two teaspoonfuls three times a day. (4) Give no drugs at all.

All of the author's cases have been treated in this simple way. In one case every symptom had vanished in four days after treatment as above. In another case, after ten weeks of suffering, the baby was absolutely well in one week. The recognition of scurvy is easy when only we realize that such a disease exists; the treatment is so simple that we feel almost shamed to take the credit for the good it accomplishes, and the change we are able to effect at once in a disturbed and discouraged household is so magical that scurvy in infants becomes really the most fortunate disease the physician can ever hope to meet.

THE MANAGEMENT OF OCCIPITOPOSTERIOR POSITIONS OF THE VERTEX.

To the *Medical News* of June 4, 1904, VOORHEES contributes a valuable practical article on this subject. He begins by considering an occipitoposterior position above the pelvic brim, but before going into details as to the management of these cases he issues a warning against too early interference. He has seen many cases brought into the Sloane Hospital where forceps had been tried outside and failed, but where a little more time having elapsed, as in transit in the ambulance, the head has engaged or descended well into the pelvis or rotated, so that labor has terminated spontaneously or with but slight assistance.

If the head is movable and high, the accoucheur must duly weigh all the conditions before he decides what to do. The plan of treatment recommended when the pelvis is normal is as follows: First get as complete a dilatation of the cervix as possible; then under deep anesthesia carry the hand into the uterus and manually rotate the occiput anterior. This can often be accomplished if the lower uterine zone is not retracted about the child. Then holding the head in position by the hand inside the uterus, and aided by an assistant making strong pressure on the fundus, apply the forceps to the sides of the head.

Often this anterior rotation will be brought about in another way. By introducing both of the blades of the forceps posteriorly, one over the other, and in rotating them for a pelvic application, the head will rotate also, and the application will be cephalic as well. Rotation of the head by means of the forceps above the brim, using force, however, is fraught with great danger to the mother and most often results in failure.

If, after rotating the head, and using moderate traction with the forceps, the head does not descend, or if the pelvis is found to be flattened, version would prob-

ably be the better operation, safer for both mother and child.

1. The cases which are the most trying are those where there has been a dry labor and the lower uterine segment is tightly contracted about the head. Here manual rotation is impossible, and version absolutely contraindicated for fear of rupturing the uterus. These cases demand a patient and prolonged effort with the forceps, carefully watching the condition of the child. What must we do? We must drag the head through the brim and down to the pelvic floor in its posterior position before nature will help us, or before we can assist the rotation. The blades do not fit the head, the hold is insecure, and no matter what kind of a forceps is used there is a tendency to slip, especially when a fair amount of force is employed. One blade, if the position is R. O. P., holds only by the tip against the right side of the forehead, and the other blade grasps the left side of the occiput by its anterior edge. Consequently, to prevent this slipping, one must of necessity crowd the blades together, and so unduly compress the head. Again, even if we use axis traction forceps, there is considerable resistance on the part of the symphysis, the part of the head in front of the coronal suture impinging against it, and it necessarily follows that, when great force is required, this soft part of the skull is pushed up and intracranial lesions may result, so that the child is often born dead or dies in a few days. A symphyseotomy, or better, a Cæsarian section, would be the only method of getting it out alive in such cases, but he is unwilling at the outset to propose this operation without giving forceps a trial. Then it is too late. In some of the cases in which the child dies in attempting forceps, or is *in extremis* when we are called upon to deliver, craniotomy will become necessary.

2. The second group includes those cases where the head is engaged in the superior strait or is in the midpelvis. Sometimes the manipulation of pushing up the forehead and thereby increasing the flexion will allow the occiput to come down low enough during a pain to meet the resistance of the pelvic floor, and so start the rotation in this class.

When, however, the forceps is indicated, often under complete anesthesia, if the head is not wedged into the pelvis, in introducing both blades posteriorly the head will rise above the brim, and upon applying the blades it will rotate with them, so that the posterior position is at once overcome and the forceps grasps the head cephalically. If the head is practically impacted in the pelvis, the blades must be applied to the sides of the pelvis. Usually, as the occiput strikes the pelvic floor, it rotates anteriorly spontaneously, or we can assist the rotation with the forceps by readjusting the blades from time to time with each advance until the occiput is anterior. This is especially the case when solid blades are used. There are a few cases, however, in which rotation will have to be effected as described in the next class.

3. This class includes the largest proportion of cases where the head is at the pelvic outlet with occiput posterior. We ought not to think simply because of this abnormal position that all cases should at once be corrected. The great majority rotate spontaneously. Many others can be allowed to come through with the occiput behind, for although the prognosis for the child is supposedly worse and a larger anteroposterior diameter of the head comes over the perineum, serious damage is very rarely done. To illustrate, out of 104 persistent occipitoposterior positions in 5000 deliveries at the Sloane Maternity Hospital, 55 were allowed to be born with the occiput behind, and only in four cases was the perineum slightly torn. Nine of these happened to be primiparæ, with fairly firm perineal bodies. Not that this treatment should be recommended as usual in private practice, but simply to show that the outlook is not so bad when anterior rotation fails to occur.

Many cases can be manually turned with ease. Twenty-seven out of the remaining 44 cases in the above series were successfully treated in this way, although in four uterine inertia made the application of forceps necessary after anterior rotation had been effected.

How, then, shall we use the forceps when necessary?

In four ways: (*a*) Most cases will rotate while the blades, having been first introduced posteriorly one over the other, are being rotated for a pelvic or cephalic

min), aged twenty-two. At the age of twelve years he received a blow on the right temple from a tennis ball. He bled from both nose and mouth for "several days afterward."

At the age of fifteen he fell from a horizontal bar. He sustained no apparent injury, but on the following day began to bleed from the nose and mouth, and to pass blood with both urine and feces. This lasted five days. On the present occasion no blow or injury had apparently been sustained.

A punctúre caused by a hypodermic injection was oozing freely. Adrenalin solution was applied to it, and no more oozing took place.

THE PROPHYLAXIS AND TREATMENT OF FOURTH OF JULY TETANUS.

The *Journal of the American Medical Association* of June 18, 1904, in a special article on this subject gives advice which applies so well to tetanus due to other causes than the celebration of the Fourth of July by exploding pistols and firecrackers that it is worth careful perusal.

As soon as possible after the patient is seen general anesthesia should be produced, and the wound cleaned out most carefully in order to put an end to further formation and absorption of toxin. This can be done effectively because in tetanus the bacilli are localized quite strictly in the wound area. Every shred of necrosed tissue must be removed, not to mention the wads, which are often two in number. The treatment will, of course, be similar in wounds from other causes. Free drainage and access of air should be secured by loose but complete gauze packing; there are some reasons for believing that iodoform gauze is of advantage. Care must be taken after the operation to secure proper sterilization of the instruments and cloths contaminated by the wound, with due consideration for the resistance of tetanus spores. Boiling of instruments in soda solution for one hour is sufficient, and sheets, etc., may be sterilized before being handled by being soaked several hours in a tub containing 1:1000 bichloride solution, with enough hydrochloric acid to make one-half per cent, the acidity increasing by many times the bactericidal powers of the bichloride.

Before consciousness returns, and perhaps even before the operation is begun, the antitoxin should be administered if available. By far the best results that have been reported seem to have been obtained by those who have injected the antitoxin into the spinal canal. As tetanus affects particularly the anterior horns of the spinal cord, this seems much more logical than the intracranial injection, and it has the great advantage of not adding a considerable operation to the already critical condition. The method used is to introduce the needle of the antitoxin syringe, preferably one of fairly large caliber, into the subarachnoid space by passing between the third and fourth lumbar vertebræ, in the usual manner followed in performing lumbar puncture. The syringe must not be attached to the needle at this time, but after the needle has entered the subarachnoid space the cerebrospinal fluid should be permitted to escape in quantity up to 150 drops, if that much will come. This is done to remove as much as possible of the cerebrospinal fluid, which is known to be highly toxic in tetanus, much more so than the blood serum. Then the syringe, containing 10 to 15 cubic centimeters of antitoxin, should be attached to the needle and its contents slowly injected, allowing at least five minutes for the process of injection. No harm need be feared from the injection of this amount of fluid, for much more has been injected without causing any trouble whatever. This should be followed by injection with a fine needle of as much as possible into the substance of and along the course of a large nerve trunk, preferably the one supplying the injured part—of course, before the patient comes out of the anesthesia. This method is based on the newer observations above cited concerning the paths by which the antitoxin reaches the spinal cord. As these observations are new, this method has not been given extensive trial as yet, but in four cases recorded of this application all recovered. Because of its indication on experimental grounds it should by all means be given a thorough trial. And lastly, still another 10 cubic centimeters may be injected in the vicinity of the wound. One need have no fears about using too much antitoxin. Elting reports a case in which one patient recovered after

receiving 80 cubic centimeters of Parke, Davis & Company's antitoxin, 100 units of Behring's dried antitoxin, and 1050 cubic centimeters of the New York State Department of Health antitoxin subcutaneously, besides 150 cubic centimeters of the latter intraspinally—altogether over 1300 cubic centimeters (about three pints). In one period of twenty-four hours he injected 300 cubic centimeters subcutaneously and 50 cubic centimeters intraspinally.

After the operation and injections a subcutaneous saline infusion is desirable, because much fluid is needed by the patient, and it is difficult to feed a patient without adding to the sources of irritation. The patient should then be placed in a quiet, darkened room, with deadened floors, and complete plugging of the ears is advantageous. Every possible means should be taken to avoid any disturbance which may start up spasms. For this purpose morphine, chloral, and bromide should be exhibited, sufficient, if possible, to keep the patient stupid. For the first twenty-four hours feeding should be limited as much as possible for the same reason, but after that time it needs to be pushed, as there is great exhaustion. The nourishment must be liquid, and usually has to be fed through a tube. Rectal alimentation is valuable if it can be given without too great disturbance.

Twelve hours after the first injection the patient should be again lightly anesthetized to avoid irritation, and the process of withdrawing cerebrospinal fluid and introducing 10 to 15 cubic centimeters of antitoxin again repeated, with also 10 cubic centimeters subcutaneously, and, if thought desirable, more saline infusion. After this the subarachnoid injections, always preceded by the withdrawal of cerebrospinal fluid, should be repeated every twenty-four hours as long as indicated.

The above described course of treatment can be realized fully, of course, only in places where the best of facilities are obtainable. Where antitoxin is not procurable the method will be much the same with the exception of the injection of the serum. As a substitute for antitoxin many European physicians, particularly the Russians, are using emulsions of fresh by Wassermann that brain tissue has a specific affinity for tetanus toxin. He found that if brain emulsion and toxin were shaken together and then sedimented, the toxin would all be removed from the supernatant fluid and combined with the brain tissue in a harmless form. Experiments also indicate that a similar union can occur within the bodies of infected animals. The method employed is to remove, under aseptic precautions, the brain of a freshly killed rabbit, pig, or sheep, and make an emulsion of 10 to 15 grammes (one-half ounce) in about 30 cubic centimeters (one ounce) of sterile salt solution. After straining through sterile cheese-cloth under slight pressure, this is injected subcutaneously, near the wound if possible, and repeated every day as long as indicated. This can merely be expected to neutralize toxin that has not entered the nervous system, but the Russians report excellent results—13 recoveries in 16 cases are reported by Krokiewicz.

DELAYED CHLOROFORM POISONING.

In the *Medical Press* of June 8, 1904, STILES and MCDONALD report upon the subject of delayed chloroform poisoning.

Although the occurrence of delayed chloroform poisoning had long been recognized in Germany, Dr. Leonard Guthrie was the first to direct attention to the subject in England. His paper in 1894 was entitled "Some Fatal After-effects of Chloroform in Children." In a second paper, published in 1903, Guthrie brought forward further observations in support of his contention that the fatty changes met with in delayed chloroform poisoning are not due to the action of chloroform alone; he maintains that the liver is in an advanced state of fattiness previous to the administration of the chloroform, and that the latter, by diminishing oxidation, already deficient, determines the state of functional inadequacy which sets up an autointoxication due to the accumulation of ptomaines or toxins.

Mr. Stiles then describes the clinical history and pathological changes in two children who died, the one three days after operation for the radical cure of hernia, and the other twenty-six hours after an

that death could not have resulted either from carbolic acid poisoning, from fat embolism, or from sepsis. In the osteotomy case the fat emboli in the lungs were only present in the smallest vessels, and were so scarce that death could not be attributed to them. It was interesting to note that some of the sublobular and hepatic veins contained a considerable amount of oil, for the most part in free droplets, but occasionally in the interior of what were evidently disintegrated liver cells. No fat was demonstrated in branches of the hepatic artery, nor could any be discovered on the aortic side of the circulation. It was evident, therefore, that the fat in the lungs was derived from that which had gained access into the hepatic veins from the disintegrated liver cells.

The possibility of sepsis was carefully considered. Lantern slides and microscopical specimens (obtained from a child who died from a gangrenous inflammation of the esophagus following operation for perityphlitis) were demonstrated to show how closely the degenerated changes in the liver, kidneys, and heart resembled those which are said to be characteristic of delayed chloroform poisoning. In neither condition were there any inflammatory changes in the glomeruli. The fact was emphasized that the same degenerative changes are sometimes present in patients who have died after operations for septic conditions, especially of abdominal origin, as are found in patients who have died from delayed chloroform poisoning uncomplicated with sepsis.

The hope is expressed that pathologists will inquire more closely into the nature and causation of the degenerative changes to be found in the above mentioned organs in surgical cases.

Unfortunately the pathology and symptoms of delayed chloroform poisoning have, up to recently, been either overlooked or wrongly interpreted, so that the mortality cannot be estimated until the condition has become generally recognized by surgeons and pathologists. With one exception the cases recorded in England had all occurred in children while under treatment either in the Paddington Green Children's Hospital or in the Royal Edinburgh Hospital for Sick Children, these being two hospitals where special attention had been directed to the condition. In Germany, on the other hand, almost all the reported cases had been in adults, and the greater proportion of these had occurred after a somewhat severe operation for infective abdominal conditions, such as suppurative salpingitis, appendicitis, etc. The element of sepsis with which these cases are complicated renders it difficult, in the present state of our knowledge, to say how far they help to solve the problem of delayed chloroform poisoning. If it could be shown that the critical condition (persistent vomiting of a more or less hemorrhagic type; small, rapid, and often irregular pulse; extreme restlessness, collapse, etc.) in which they occasionally found patients forty-eight hours or so after operation was in any way brought about by degenerative changes set up by the chloroform, the question of substituting ether would have to be seriously considered even in the case of children. Unfortunately, however, the mortality in children from the effects of ether on the respiratory tract would probably be as great as, if not greater than, that due to the after-action of chloroform.

It is not thought that Dr. Guthrie has brought forward sufficient evidence to show that the fatty change here described is the essential predisposing factor, and that the chloroform merely acts as the "last straw." It is thought much more probable that the fatty change is entirely due to the chloroform acting on a previously healthy liver; indeed, experimental evidence seems to give support to this possibility. Moreover, while the changes in the liver are so striking it must not be forgotten that other organs give evidence of a general toxic poisoning, and it seems hardly justifiable, therefore, to attribute the fatal result to hepatic insufficiency.

Fatal cases of delayed chloroform poisoning are undoubtedly very rare, and it would appear, therefore, that idiosyncrasy is the main factor in their causation just as it is in the irreducible minimum of deaths which occur during chloroform anesthesia. As regards the treatment of delayed chloroform poisoning the authors entirely agree with Guthrie in strongly condemning the use of morphine. Rectal and subcutaneous injections of normal saline solution, and, if necessary, intravenous injections, must be employed. If the vomiting is copious the stomach should

be washed out, and an endeavor should be made to get it to retain some calomel or gray powder. Cardiac stimulants must be used, but in moderation.

TREATMENT OF PARALYSIS AGITANS.

R. FRIEDLANDER (*Zeit. f. diat. und phys. Therap.*, March, 1904) discusses the treatment of paralysis agitans. Up to the present no cure has been found for this disease, and so great an authority as Oppenheim says that the doctor can do little good and much harm by treatment. The site of the primary anatomical lesions is still not known, although modern investigators tend to locate it rather in the muscles and peripheral nerves than in the central nervous system. The use of electric baths has been much recommended, and Schnée records that in 44 out of 56 cases so treated recovery or lasting improvement resulted. The author's experience of this method has not been so favorable, although temporary improvement has been obtained. The baths have a sedative effect and lessen the tremors, but they do not touch the muscular rigidity to which the main symptoms are due. He has, however, by means of passive and active movements of the affected muscles been able to obtain a certain amount of improvement and to limit the spread of the disease. Any exercises which strain the muscles are contraindicated, but passive movements, carried out carefully, slowly, and without the exercise of more force than is needed to overcome the increased resistance of the flexor muscles, are found to diminish the muscular irritability. The tremors also decrease with the rigidity. The movements of each joint may be repeated five to ten times at a sitting. The parts of the body not being exercised are kept as far as possible supported and fixed. A light massage of the skin is combined with the movements. The effect is at first only momentary, but if the exercises be repeated daily, a lasting improvement follows in the lighter cases, and some improvement even in those which are more severe.

Active exercises are beneficial whenever by exertion of the will-power a temporary intermission of the tremors and control of the muscles is still possible. The power of these controlling cerebral impulses may be increased by exercise. The patient at first concentrates his attention on checking the tremors of one part, as of a hand or foot. Although in the beginning he can do this only for a short time, his power increases until he is finally able to accomplish it without a specially strong effort of will. He is not allowed to tire himself in his attempts. He next tries to rectify one of the anomalies of position, and practices, first when sitting down and then standing, to hold the different limbs in their normal position. In the intervals, by active contraction of the extensor muscles, he lessens the rigidity of the antagonistic flexor muscles.

A series of exercises is needed to correct the gait. The back is extended as the foot touches the ground, and foot movements and a slow walk are especially practiced. Attempts to walk on a narrow track or to place one foot directly in front of the other when walking are useful in remedying the tendency to abduction of the leg. Patients who are much inclined to propulsion practice walking backward. Special exercises for the upper limbs are also undertaken. The material is scanty, and a final opinion on the merits of the treatment cannot as yet be formed, but the author believes that by its means symptomatic improvement may be obtained, and the spread of the process combated.—*British Medical Journal*, June 4, 1904.

TRACHOMA TREATED WITH ROENTGEN RAYS.

PARDO (*Gazz. degli Osped.*, April 10, 1904) reports two cases of trachoma which derived marked benefit from the application of *x*-rays. The first case was aged sixty, and had suffered from double trachoma for three years. In the right eye there was dense pannus, abundant catarrh, and congested iris. The left eye was similarly affected, but to a much less degree. The second case was aged fourteen, and the disease had lasted two years. A Crookes tube with a spark about 700 mm. was used at a distance of 45 to 30 centimeters for four to ten minutes at a time. Only one eye was treated, the other being carefully protected with a metallic shield. About six applications

were made in each case at intervals of three days. As a result of the treatment the conjunctiva became smoother, the secretion ceased, the pannus cleared, and there was marked improvement in vision in the first case. In the second case many of the tarsal follicles disappeared, the secretion diminished, and there was considerable improvement in the subjective sensations.—*British Medical Journal,* June 4, 1904.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC.

LARGE in the *Cleveland Medical Gazette* for June, 1904, expresses the belief that for the nose, throat, and aural surgeon ethyl chloride is an ideal anesthetic. It is very satisfactory when puncturing the ear drum, when opening furuncles in the canal, and abscess of the throat, or for the removal of adenoid tissue or tonsils. The author has also used it in making examinations of the tympanic membrane when the external canal was swollen and very painful, and thus sums up its advantages: (1) It is safe and reliable. (2) It is simple to administer; no expensive apparatus is necessary. (3) It causes no cyanosis nor struggling. (4) It is pleasant to take; no smothering or unpleasant symptoms result. (5) Its after-effects are comparatively *nil.* (6) Its cheapness. (7) Its easy mode of transportation. (8) It can be administered with the patient sitting or reclining. (9) It can be given in the office. (10) It is adapted to cases in which it is not desirable to narcotize the patient thoroughly, as in operation for goitre, openings of abscesses, operations on the throat, etc. And finally (11) it is valuable as a preliminary to ether or chloroform, thus saving time and anesthetic.

THE PROPHYLAXIS OF SUMMER DIARRHEA.

MASON in the *Maryland Medical Journal* for June, 1904, after recording a series of cases of this disorder concludes that a study of his cases tends to lay stress on the following points:

1. There is no satisfactory substitute for mother's milk, particularly for the children of the poor.

2. When artificial feeding is necessary it is important that there should be some modification of the strength and quantity of the milk suitable to the age of the infant, that indigestion may be prevented, which implies a lowered resistance to all infections, particularly those through the alimentary tract.

3. There is reason to believe that unboiled water may play a part in the spread of summer diarrheas, and it is desirable that all water given to an infant in hot weather, either with or between its feedings, be boiled.

4. A pure milk should be accessible at a low price to the poor of all large communities. This milk should be sterilized during the summer months.

5. A diet consisting exclusively of condensed milk prevents the proper development of the child, and lessens its resistance to untoward influences.

6. Life amid unhygienic surroundings has a marked deleterious effect upon the health of an infant.

THE IODIDES, BUT NOT POTASSIUM IODIDE.

BRUNSON in *American Medicine* of May 14, 1904, writes concerning the internal administration of potassium iodide. His experience in giving iodides while practicing at Hot Springs led him to stop the administration of potassium iodide several years ago. His reason for doing this was that he frequently noticed what he thought to be an idiosyncrasy for potassium iodide in many patients, so he consulted a professional friend whose experience extended over many years, who suggested that he try sodium iodide and the result would be different. Since that time he has not prescribed potassium iodide, but has given pounds of sodium iodide, with markedly few instances of stomach intolerance of the drug. From his deductions it became patent to him that the intolerance was not caused by the iodine, but by the potassium salts. The usual minimum dose prescribed is 1.25 cubic centimeters (20 minims) of a saturated solution in a glassful of water three times daily, one-half hour after meals. This dose can be increased .3 cubic centimeters (5 minims) daily up to

24.64 cubic centimeters (400 minims) three times daily if desired, or to the point of iodism. During the administration of the heroic doses the patient is instructed to drink copiously of water. The author believes it essential to give large doses of iodides to obtain the best results, as they are very rapidly eliminated from the system, and we cannot get the best effects by giving small doses. In this connection he asserts that the administration of some form of mercury is usually necessary in conjunction with the iodides in those old, tertiary manifestations of syphilis, as well as in the secondary period, if we wish to obtain the desired results.

THE MEDICAL ASPECTS OF DECAPSULATION OF THE KIDNEY FOR THE CURE OF CHRONIC BRIGHT'S DISEASE.

Our readers have already had from us on one or two previous occasions our views as to the futility of this method of relieving Bright's disease. In the *New York Medical Journal* of June 4, 1904, ELLIOTT writes a valuable paper in which he still further condemns it. In concluding his remarks this writer emphasizes a few facts which are of interest, as vitally affecting the subject under discussion.

1. Chronic Bright's disease in its development constitutes a diseased condition of the entire system.

2. It is a disease of very gradual development, and in the great majority of cases has existed for months and years before the patient comes under observation.

3. It is produced by a chronic toxemia, either systemic or infective in origin, which produces coincidentally as a result wide-spread arterial and cardiac degenerative changes, which being once established are permanent, and which in their development eventually constitute the most threatening element of the disease.

4. General edema or anasarca in chronic renal disease is in many instances in great measure a cardiac dropsy, brought about by advancing myocardial degeneration. It is occasionally so in chronic parenchymatous nephritis, and almost invariably so in chronic interstitial nephritis.

5. It may be stated that, in like manner, developing anuria and uremia in chronic nephritis may be largely cardiac in production, the functional inadequacy of the kidneys having its inception in the fall of blood-pressure incident to circulatory failure.

6. In the later stages of chronic nephritis, of whatever character, the case is apt to take on these cardiac aspects, which virtually convert the therapeutic problem into a question of sustaining a failing heart.

7. Albuminuric retinitis must be looked upon as one of the terminal symptoms of chronic nephritis. The concordance of opinion places a limit of two years upon the prognosis after development of this complication. The statistics gathered by Suker of cases operated on show that, in place of prolonging this limit of expectancy, operation has a decidedly contrary effect.

8. It is to be borne in mind that chronic nephritis is a disease of slow and spasmodic development. It is well to realize its exacerbations and remissions, so as to avoid the error of mistaking remissions for cures.

9. The mere fact that the general condition of the patient improves somewhat after decapsulation does not establish the validity of the operation, for hygiene and rest will do the same for the patient to a remarkable degree in many cases. As the factors of hygiene and rest are invariably associated with the surgical procedure, it is possible that the resulting benefit may, to some extent, accrue from those sources.

10. The results of experimentation demonstrate that, within a period of three and a half months after decapsulation, a new, and in most cases a tougher, fibrous envelope has taken the place of the original capsule. This fact may account for the many relapses and deaths after that period in cases operated on, and in chronic cases at least it narrows the prospect of improvement to a period of months.

SUKER still further discusses this subject from the standpoint of the oculist in the same issue of the same journal, and concludes as follows:

First, as, at the very least, 25 per cent of cases of all grades and variety of chronic Bright's disease present evidences

of retinal or other serious fundus complications; and

Second, as these various fundus complications are usually of the degenerative inflammatory type, attended by like changes in the kidneys; and

Third, as the cardiovascular system is, or shortly will be, seriously involved; and

Fourth, as such changes may develop without any subjective symptoms on the patient's part; and

Fifth, as these retinal complications have been accepted as indicative proof of a general circulating systemic toxin, and designating the acme of the development of the Bright's disease; and

Sixth, as the death-rate of this class of cases under the best medical treatment (both hospital and private practice) is about 75 per cent for the first year, and at least 85 per cent for the second, scarcely any subjects surviving three or four years, while in cases operated on it is 100 per cent for the first year; and

Seventh, as these fundus findings are of paramount prognostic import in an inverse proportion to the age of the patient; and

Eighth, as the medical aspect of this question, as presented by Dr. Elliott, offers as good if not far better results than the decapsulation in like cases—therefore must this climatic array of positive clinical data, which is so palpably evident as well as available, not be disregarded on the part of the surgeon in endeavoring to establish the validity of this operation under discussion. This is at least true for the complicated cases, especially so when it can be said that the patients in some cases verily died because of the operation, and others operated on fell within the pale of the classic two-year limit.

Finally, the writer has ample reasons to believe conservatively that he has conclusively proved decapsulation of the kidney for chronic Bright's disease to be absolutely contraindicated in such cases as present a retinitis or a neuroretinitis, with or without hemorrhages. It is needless to say, therefore, that one must heartily indorse the medical standpoint in this discussion, as Dr. Elliott's array of incontrovertible facts uniformly substantiate both his and the writer's position.

This paper is written from a purely ophthalmic point of view and does not purport to cover anything else—only wishing to show the surgeon that now and then the ophthalmologist can throw out prohibitory warnings in reference to some contemplated operations which are in their formative periods.

THE TREATMENT OF FEVER IN PHTHISIS.

H. LORENZ (*Zeitschrift für Tuberk. und Heilkunde,* Bd. v, Heft 2) emphasizes the importance of absolute rest in bed as the treatment of fever in phthisical patients. It has been proposed to employ antipyretics to reduce the temperature, and to then allow a limited amount of movement. At Halila, in Finland, when this course had been adopted, even to the small extent of allowing the patient to lie in the open air during the day, the influence of antipyretics on the temperature at once became less and the daily rise of temperature greater. Whatever the cause of this may be—whether the patient does not get such absolute rest during the day, or whether the sharp changes of temperature to which he is exposed are harmful—it shows clearly, at any rate, that he is better in bed in a thoroughly ventilated room than moving in the open air. A great factor in the prognosis of phthisis is the amount of lung tissue involved, a favorable termination being possible, even after the formation of a cavity, if the extent of the inflammatory process becomes limited. The importance of a rise in temperature is very great, because it shows the presence of an active destructive process. Motion on the part of the patient tends to the spread of this process, and it is well worth while to keep the patient in bed, even for months, in order to obtain its limitation. The ordinary medicinal and other subsidiary measures are not neglected. Compresses are found to aid expectoration and prevent the accumulation of inflammatory products. The body is daily rubbed with diluted spirit. As disinfectants, ichthyol and guaiacol are specially useful.

Two cases are described in which prolonged rest in bed finally reduced the temperature to normal, the patients making good recoveries. The first was a man,

thirty-four years of age, who had suffered from cough for two years before admittance, and in the last two months had severe cough, and pain in the side, fever, and night sweats. Tubercle bacilli were present in the sputum. The patient was emaciated, and the breathing quick and superficial. On examination there was impairment of resonance at the left apex, reaching in part to the third rib and behind to the spine of the scapula, with bronchial breathing, and moist râles behind. A second similar area was present below and beneath the angle of the scapula. The patient was kept in bed for five months after admittance before the temperature finally became normal. On leaving the sanatorium at the end of ten months' residence the only physical signs to be detected were slight impairment of note at the apex and the angle of the scapula, with some prolongation of expiration over the lower area. No tubercle bacilli could be found in the sputum. He has remained well up to the present time—that is, for a period of three years.

The second patient showed marked signs of disease at both apices, and of a small cavity at the left apex. The temperature became normal after five and a half months in bed, and he was able to leave the sanatorium at the end of seven months. He has since returned twice to the sanatorium at long intervals, and in between has done his work as an officer in the army. When last heard of he was in excellent health. Recovery in cases of such wide-spread disease speaks well for the treatment adopted.—*British Medical Journal,* Feb. 27, 1904.

OBSERVATIONS ON SOME OF THE NEWER REMEDIES IN THE TREATMENT OF DISEASES OF THE EYE.

To the *Glasgow Medical Journal* for June, 1904, HINSHELWOOD contributes an article in which he speaks of his experience with these new compounds. He has found adrenalin a very valuable agent in dealing with cases of conjunctival hyperemia, where there is no secretion, but where the patient complains greatly of a feeling of heat and roughness in the eye, caused, no doubt, by the distention of the conjunctival vessels, which, standing out prominently, cause a sensation as if sand were in the eye. For this condition adrenalin solution dropped into the eye, and sponging or spraying the outside of the closed lids with cold water, gives the patient great relief, and often leads to permanent cure.

He has also found adrenalin a most useful adjunct to other drugs, such as atropine, cocaine, eserine, etc., in cases where the inflamed condition of the eye and the hyperemia of the vessels interfered very materially with the absorption of any drugs dropped into the conjunctival sac.

In inflammatory conditions of the eyes, and where there is injection of the conjunctival vessels, cocaine, holocaine, and other anesthetics have only a very slight effect. If we attempt to do an iridectomy under such circumstances, we find that the iris has been practically unaffected by the anesthetic. Under these circumstances the author has found that the adrenalin solution, by diminishing the intense hyperemia, seems to allow of the better absorption of the anesthetic; and if, for some time before the operation, we instil alternately the anesthetic and the adrenalin solution, we may even in such cases perform an operation almost painlessly.

Similarly in iritis, where the atropine did not seem to be acting on the pupil and causing the required dilatation, the use of adrenalin solution has increased the absorptive power of the eye, and has enabled the atropine to take more powerful effect and produce the required dilatation.

Similarly, in inflammatory glaucoma, when the eserine seemed to have no effect in contracting the pupil and reducing tension, the addition of adrenalin solution markedly increased the efficacy of the eserine.

The adrenalin, by reducing the hyperemia of the vessels, brings the eye under more normal conditions, thus increasing its absorptive powers, and so rendering more active drugs dropped into the conjunctival sac.

In 1898, at a meeting of the British Medical Association at Edinburgh, the author made a communication on holocaine, a new ocular anesthetic. Since then he has been using it constantly, and

finds it for many purposes much superior to cocaine. Its good points are not sufficiently appreciated by the profession, and he therefore gives this brief summary of its advantages.

He uses holocaine either in the form of a one-per-cent aqueous solution of holocaine hydrochloride, or in the form of an ointment made up with vaselin of the same strength. Holocaine is readily precipitated in presence of an alkali, and hence ordinary glass bottles must be dealkalized by boiling them in a weak solution of hydrochloric acid for half an hour or an hour before the holocaine solution is put into them. If this be done, then the holocaine solution is perfectly stable, and will remain good for a considerable time.

The holocaine solution will be found to produce a more rapid and more lasting anesthesia than that of cocaine, and without the disadvantages of cocaine. Holocaine has no effect on the eye apart from the anesthesia. Cocaine produces dryness and exfoliation of the epithelium, with a transient dilatation of the pupil and paresis of accommodation. Holocaine has no effect on the cornea, the iris, or the ciliary muscle. It has one drawback for operative work—the dilatation of the vessels leading to a greater amount of hemorrhage than cocaine, which contracts the vessels. The 10-per-cent holocaine solution possesses powerful antiseptic properties, which Heinz says are so powerful that boiling the solution to sterilize it is quite unnecessary. It can be sterilized, however, by boiling without any decomposition. This is a very great advantage to the general practitioner who is only using an anesthetic on rare occasions, perhaps mostly for removing foreign bodies from the eye. For this purpose holocaine is an ideal anesthetic for him. He can leave it a long time, and use it without fear of introducing any septic microörganisms into the eye. A cocaine solution, on the other hand, which has been left a long time should not be used for this purpose without previous sterilization.

According to the author holocaine is also of very great service in the treatment of ulcers of the cornea. Ulcers are often accompanied by a great amount of pain, and before holocaine he used often to give cocaine for the purpose of relieving it; but since the introduction of holocaine he has preferred to use it, as it is most effective in helping to relieve the patient's sufferings, and also is helpful in bringing the ulcer into a healthy condition, probably owing to its bactericidal properties. In such cases he always prescribes it in the form of ointment, combined frequently with atropine. In cases of corneal ulcer there is usually considerable tearing, and drops are practically useless, as they are at once diluted and washed away by the abundant flood of tears. Hence, in such cases, the only efficacious way of applying such drugs as atropine or holocaine is in the form of ointment, for which vaselin makes an excellent basis. If a piece of this ointment is inserted under the lids, it smears itself all over the globe of the eye, and becomes intimately applied to the whole extent of the cornea and conjunctiva. There can be no doubt of the enormous superiority of applying drugs in this way to the eye when there is much lacrimation, and he calls especial attention to it.

In glaucoma also holocaine will be found most useful in relieving pain. Cocaine, which dilates the pupil and raises the tension of the eye, should never be used for this purpose. In the *Ophthalmic Review* of 1898 the author reported a case of acute glaucoma brought on by the use of cocaine. Holocaine can be used freely in all cases with elevation of tension of the globe. In glaucoma, in all its forms, holocaine is therefore the anesthetic which should always be used.

In the deep-seated pain produced by severe inflammation, such as iritis, cyclitis, and iridocyclitis, the author has found the analgesic properties of holocaine very much greater than those of cocaine. In such cases cocaine is very effective, and in some it seems actually to increase the pain, which it probably does by raising the tension of the eye. The relief in such cases by holocaine will be found to be much greater and more lasting, and the drug can be used freely, as there is no danger of elevating the tension of the eye. In holocaine we have an analgesic having a more profound and more lasting influence than that of cocaine, and hence of the greatest value for the relief of the

deep-seated pain in cases of inflammatory affections of the eye.

Holocaine must not be used either for subconjunctival injection or for injection into the tear passage, as it is more poisonous than cocaine, resembling strychnine in its action.

THE DIETETIC TREATMENT OF DIABETES.

In the *London Practitioner* for June, 1904, HUTCHISON gives the following directions as to the diet of diabetics:

In severe cases if a test diet has shown that the patient excretes more carbohydrate than he takes in, we must proceed cautiously. The next step in such a case is to examine the urine carefully for oxybutyric acid and its allies. The easiest way of doing so is by the "perchloride of iron" test.

1. If the addition of a few drops of solution of perchloride of iron causes the urine to assume a dark, port-wine color, any change of diet should be made very gradually, for such a patient is always in danger of coma, and the coma may apparently be precipitated by any sudden change in dietetic habits. The carbohydrates in the diet should therefore be reduced very slowly, and bicarbonate of soda should be administered at the same time in quantities of from one-half to one ounce daily. Proceeding thus one can often get the patient gradually on to the diet of pure proteid and fat described below. Not infrequently, however, one meets with difficulty. The sugar excretion may remain high, and the patient's weight and general condition may deteriorate, or coma may threaten. If things shape thus, it is best to abandon all attempts at a rigid diet, and to allow a definite quantity of carbohydrate in the form of bread and milk. For it must never be forgotten that in some of these severe or, as Dr. Pavy calls them, "composite" cases proteid is as harmful in the direction of increasing the amount of sugar in the blood as carbohydrates. Even when everything is going well it is not advisable, when one is dealing with this type of the disease, to give more than 500 grammes of cooked meat a day, or its equivalent in other forms of nitrogenous food. In many such cases one must reluctantly abandon all attempts to keep the blood sugar-free, and be satisfied if the output of sugar does not rise above 100 grammes per day.

2. If the perchloride reaction is negative, one can proceed to a strict diet without much anxiety. Whether this should be done suddenly or gradually is a matter of choice. Provided the patient can spare the time it would seem better to proceed gradually. One should begin by eliminating from the diet sugar and all the grosser forms of carbohydrate, then the farinaceous foods, then bread, and finally even milk, each of these articles being replaced as it is withdrawn by a carbohydrate-free substitute. The final strict diet would be something as follows:

Breakfast: Bacon or buttered eggs, or both, or some cold ham; casoid-meal bread with plenty of butter; coffee made with sugar-free milk and sweetened with saccharin.

About 11 A.M.: A glass of sugar-free milk and a diabetic biscuit or rusk.

Luncheon: Soup; any animal food, *e.g.*, a little cold meat or game or some fish; cheese; salad with plenty of oil; some starch-free bread; as a beverage, any natural wine or a little spirit and aerated water.

Afternoon: Tea with plenty of thick cream and a diabetic rusk or two, or biscuit, with plenty of butter.

Dinner: Any clear soup with the addition of some grated cheese; fish; any meat; green vegetables with melted butter; baked custard made of sugar-free milk and eggs; beverage as at luncheon.

At bedtime: A glass of sugar-free milk and a diabetic rusk or biscuit.

If such a diet suits the patient—and of course it admits of variation to meet individual tastes—and if the sugar excretion disappears, he should adhere to it as long as possible. After a few weeks one may test his powers of consuming carbohydrates cautiously by allowing a weighed quantity of bread, and it will often be found that a certain degree of assimilative power has returned. In such a case one may allow a small quantity of bread (or its equivalent in some other starchy food) daily, the condition of the urine, however, being carefully watched. More commonly one finds that the failure of assimilative power is progressive, and

that cases which begin in this group pass sooner or later into the other, in which even on strict diet some sugar is excreted, though by careful treatment such a result can often be postponed for a considerable time.

Fatty Foods.—It might truly be said that the usefulness of any article of diet to a diabetic is in direct ratio to the amount of fat which it contains. For fat is the only nutritive constituent of food which cannot do a diabetic any harm; it never increases the output of sugar. It follows from this that a large part of one's duty to a diabetic patient consists in teaching him to eat as much fat as possible. The best forms of fatty food are bacon and butter (each of which contains about 80 per cent), cream (60 per cent), and salad or olive-oil (which are pure fat). Every diabetic should learn to consume at least a quarter of a pound of butter a day; his bread should be soaked in it, and it should be used as a sauce for green vegetables and fish. Cream may be taken in tea or coffee. If there is difficulty in digesting enough fat—and many diabetics experience such difficulty—the administration of a little alcohol at meals will often improve matters.

LIP-TIE.

An Italian infant came to GRIFFITH (*Annals of Surgery,* March, 1904) presenting a condition in which the inner surface along the middle line of the entire upper lip had been bound to the gum by a fold of tissue continuous with the mucous lining of the mouth, and about one-eighth of an inch thick. When the mouth opened the middle of the upper lip rolled directly inward.

This unique affection was treated by cutting through the partition half-way up its extent with blunt-pointed scissors, without the aid of anesthetics. The remaining portions were torn through by the aid of the fingers. Bleeding was only momentarily free.

INFLUENCE OF SKIN-GRAFTING ON THE RECURRENCE OF MORBID GROWTHS.

CAMPBELL, writing to the *British Medical Journal* of February 13, 1904, refers to the influence of skin-grafting on the recurrence of morbid growths as follows:

In cases of lupus, if the affected skin be excised and skin-grafting of the raw surface be employed, there is no tendency for the disease to recur, whereas if the wound be stitched up there is a marked tendency to the formation of tuberculous nodules in the stitch-holes and scar. The same observation applies to keloid scars. There is also reason to believe that skin-grafting exercises an inhibitory influence on the recurrence of sarcomata of the skin. The author has not yet been able to satisfy himself that carcinomata are affected in the same way.

PULSATING EXOPHTHALMOS.

As but 175 cases of pulsating exophthalmos have been noted in the literature of the last eighty-eight years, MURRAY (*Annals of Surgery,* March, 1904) reports his experience in a single case, and in connection therewith invites attention to the salient features of the condition.

The characteristic symptoms are exophthalmos, pulsating tumor at the inner angle of the orbit, bruit, and pulsation. The most prominent symptom is the protrusion of the eyeball, which in most cases reaches a high degree. The sequence of the symptoms may vary, but as a rule exophthalmos appears before pulsation.

The natural course of the disease, and the ultimate result of the process, if left to itself, or if not affected by treatment, is a steady increase of the symptoms, when, having reached their height, the exophthalmos, the chemosis, and the swollen lids gradually subside, but the subjective symptoms as well as the pulsating tumor remain, and the eyesight, gradually growing weaker, is finally destroyed.

In a few instances spontaneous cure has resulted, hence some advise the trial of local and internal remedies before a resort is made to surgical measures. The time thus spent may result in the serious impairment, if not the loss, of eyesight. Medical treatment is indicated, however, where the patient is old, or when the arteries are so diseased as to forbid surgical methods. In the beginning of the disease, when the symptoms are not developed sufficiently to allow of a diagnosis, rest in bed, cold applications, narcotics, etc., are indicated; but when the nature of the trouble is indicated, surgical treatment should be promptly instituted.

Compression is limited to the treatment of the idiopathic cases, where the conditions are more favorable for the deposition of clots. Ligation of the common carotid is the preferable method.

The results of ligation, 95 cases in all reported by Slomannin in 1898, were: cured, 49 (about 50 per cent); improved, 17 (17 per cent); unimproved, 17 (17 per cent); died, 10 (10 per cent).

Some operators have obtained results which suggest the possibility of a cure by merely tying off the mass of enlarged and pulsating veins at the inner angle of the orbit, and if not successful, then the carotid ligation should follow.

When recurrence follows ligation of the carotid, it may be well, and certainly safer, to ligate and resect the veins before attempting the ligation of the second carotid.

As a rule recurrence of symptoms after operation appears within a short time, generally a few weeks. Its delay in the case reported by Murray accordingly appears exceptional. In this latter case the error as regards treatment was, according to the operator, the ligation of the common carotid. Had the internal carotid been tied the chances of recurrence might have been lessened.

If the patient returns for another operation, following Woodward's example ligation would be done, and the branches of the superior ophthalmic vein at the inner angle of the orbit would be resected. If necessary a portion of the vein would also be resected.

PANCREATITIS—TREATMENT.

In a lecture recently delivered before the Royal College of Surgeons, England, Robson (*Lancet,* March 26, 1904), holding that inflammatory affections of the pancreas or its ducts are very much more common than is generally supposed, outlined the more important points of the treatment.

As soon as acute pancreatitis is proved the surgeon must not wait until the collapse has passed off, as that may be dependent on septic absorption, which can be relieved only by operation. The simulation of intestinal obstruction will probably lead to efforts to secure an evacuation of the bowels and relief to the distention. An early exploration from the front through the middle line above the umbilicus, or from behind through the left costovertebral angle, is indicated in order to relieve tension, to evacuate septic material, to secure free drainage, and to arrest the hemorrhage which leads to disintegration and necrosis of the pancreas.

The after-treatment will be directed chiefly to combating shock and keeping up the strength until the *materies morbi,* both local and general, can be thrown off. Even if no pus be found no harm should accrue by such an exploration, as it can be made in a few minutes through a very small incision in the middle line above the umbilicus, if necessary with the aid of cocaine. After the discovery of fat necrosis a posterior incision in the left costovertebral angle will enable the diseased organ to be very freely examined and, if necessary, drained for the evacuation of pus and gangrenous material without risk to the general peritoneal cavity, and with very little danger of retained septic matter, as the drainage will be a dependent one. Should the inflammatory collection or the tensely distended and inflamed gland be incised from the front, as is advisable in certain cases, gauze packing and gauze drainage may usually be relied on to prevent general infection of the peritoneum. If there are signs of obstructed common duct the gall-bladder should be drained, and if gall-stones are discovered they should be removed, if this can be done without seriously adding to the length of the operation, or imperiling life by adding to the shock; otherwise they may be left and removed on a subsequent occasion, if free drainage of the bile passages can be secured.

The subacute form of pancreatitis is more amenable to treatment, as the indications are so much more definite and there is more time for careful consideration. Though it has usually only been attacked when an abscess has formed and is manifestly making its way to the surface, yet there is no reason why, in some cases, surgical treatment should not be adopted at an earlier stage. As in the acute condition, morphine may be required to relieve the pain and to lessen the collapse. Distention, if present, demands attention, and may have to be relieved by lavage of the stomach and turpentine

enemata, or by the administration of calomel by the mouth. Calomel is also of benefit as an intestinal antiseptic, for which purpose it may be given in small repeated doses followed by a saline aperient. As soon as the constipation is relieved diarrhea is apt to supervene, when salol and bismuth, with small doses of opium, may be administered. If surgical treatment is decided on, a median incision above the umbilicus will enable the operator to palpate the pancreas and to locate any incipient collection of pus, which, if practicable, should then be evacuated by a posterior incision in the left or right costovertebral angle, or removed by aspiration, and the cavity opened and packed with gauze, which may be brought forward through a large rubber tube, which procedure will in the course of twenty-four to forty-eight hours establish a track isolated from the general peritoneal cavity. In abscess of the pancreas, which usually assumes the form of subacute pancreatitis (and must be distinguished from the acute suppurative pancreatitis where the pus is diffused through the gland or where the abscesses are small and multiple), the suppurating process is limited by a pouring out of lymph, so that should the patient survive the initial more acute stage, and discovery of the pus-containing cavity be made, the condition is one decidedly amenable to treatment by drainage. It is important in these cases to see that the cause is removed (for instance, gall-stones or pancreatic calculi), so that if recovery occurs there may be nothing left to lead to a recurrence.

Of eight cases of abscess of the pancreas, six were operated on, with recovery from operation in five, though in one of the cases the relief was only for a few weeks, and in the other for a few months. One was a case of acute pancreatitis. In the eighth case, which was not operated upon, the abscess ruptured into the bowel and was discharged, the diagnosis having been made by an examination of the tumor under an anesthetic and by the presence of pancreatic reaction. When inflammation of the pancreas has ended in abscess, chronic interstitial pancreatitis probably will be present also, as was shown at the necropsy of one of the cases that died subsequently. It is possible that in some of the cases the interstitial change may be local, though in others it may be general and lead to an atrophy of the gland and to glycosuria. A search through literature reveals a considerable number of pyemic abscesses of the pancreas, but those resulting from subacute pancreatitis are not common. Of fourteen cases operated on for abscess of the pancreas, five died, giving a mortality of 35.6 per cent.

By chronic pancreatitis is understood an interstitial change in the pancreas of an inflammatory character leading to the formation of fibrous tissue. It may be *interlobular,* in which case it exerts pressure on and causes atrophy of the true glandular substance of the pancreas, and interferes with its digestive function; or *interacinar,* in which case the fibrous tissue also invades the islands of Langerhans, and leads not only to an interference with the digestive but also with the metabolic functions of the gland, and so to glycosuria.

The most important diagnostic means by which to determine whether or not the pancreas is participating in the disease, and whether the affection be dependent on simple inflammation or on cancer, is the discovery of the pancreatic reaction in the urine. This test should save many useless operations, for if it can be made to prove the presence of malignant disease of the pancreas along with jaundice, operative treatment should be avoided as being not only extremely dangerous, but practically useless, even if the patient recovers from the operation.

The treatment of catarrhal inflammation of the pancreas and of chronic interstitial pancreatitis should be to aim first, by general and medical means, at the cause, whether that be gall-stones, pancreatic calculi, duodenal catarrh, gastric ulcer, alcoholism, or syphilis. If after a fair trial of medical treatment the jaundice and loss of weight continue, and signs of failure in pancreatic digestion and metabolism are manifesting themselves, the question of surgical treatment should be considered, in order to prevent serious degeneration of the gland.

When operation is undertaken before the process has advanced to well marked pancreatitis or to the interacinar form, complete cure is effected in a great majority of cases, but if interstitial inflammation has become well marked an arrest of

the process is all that can be looked for. As proof of this statement, in some patients, apparently well several years after operation, a pancreatic reaction was obtained in the urine, while in two cases glycosuria developed, thus showing that inflammation of the pancreas, if at all advanced, leaves abiding changes, and the sooner the morbid process is checked the less likelihood will there be of a permanently deficient metabolism. Surgical treatment will vary according to the cause and the symptoms. Where there is evidence of obstruction, whether in the pancreatic or common bile-ducts, the cause in the greater number of cases, 27 as compared with 24, will prove to be concretions, which should if possible be removed, as the hope of relief is very promising.

At the same time the bile-ducts should be drained either by means of cholecystostomy or cholecystenterostomy (even when no obstruction can be found), thus removing one source of irritation in the shape of infected bile, relieving tension, and allowing the infected pancreatic secretion to escape, besides freeing the blood from a poison which seriously affects the system.

Whether advanced chronic interstitial pancreatitis will be completely cured by operation it is difficult to say, for in some of the severer cases a pancreatic reaction is found long after the operation, though in several cases that have been tested years after the operation this reaction had entirely disappeared, thus apparently proving that the case is cured. The operation may arrest the process of disorganization even if it cannot alter changes that have already occurred. Doubtless in some the disease was a catarrhal inflammation, which was arrested before interstitial inflammation had actually developed, or before it had gone too far; and probably in none had the interstitial change advanced so far as to become interacinar, or to present the advanced stage of atrophy or cirrhosis, as in none of the cases was sugar present in the urine at the time of operation, though the metabolic functions of the pancreas were impaired, as shown by the presence of the pancreatic reaction, and the digestive functions were affected, as shown by the condition of the feces.

A search through the literature of the subject has revealed the fact that (apart from the author's cases, fifty-one in number, with a mortality of 3.9 per cent—two deaths) there have been sixty-two operations for chronic pancreatitis recorded, which resulted in eight deaths, yielding a rate of mortality of 12.9 per cent.

CIRRHOSIS OF THE STOMACH.

From the history of the case, with which he has had personal experience, both before and since the operation performed, SHELDON (*Annals of Surgery,* March, 1904) is confident he has had to do with the somewhat rare complaint, cirrhosis of the stomach.

The affection is so rare that some authorities have maintained that it is impossible that a non-malignant cirrhosis of the stomach can exist. It is possible, of course, that a carcinomatous process may develop in a stomach already the seat of chronic cirrhotic changes, but it is improbable that such a case has been recorded.

From a study of the cases recorded it appears that usually definite symptoms were preceded by a long-standing dyspepsia. The most distressing symptom is vomiting; it occurs in paroxysms at the beginning of the disease; later it is complained of every day. In most cases the ingestion of food precedes the vomiting. Emaciation and weakness are very prominent. The marked and rapid wasting might suggest the presence of malignant disease.

In the cases reported, physical examination proved negative except in one instance.

In making a diagnosis it may be impossible, in any case, to exclude malignancy. The following conditions would point to a cirrhosis of the stomach: Long-standing disease; absence of vomiting of blood; a contracted stomach; absence of a tumor on palpation; absence of glandular or hepatic involvement; improvement of the patient generally, and relief of the stomach symptoms, for a considerable period of time, when rectal feeding is resorted to.

The treatment is surgical. If the condition is non-malignant, as there is reason to believe from the reports of the cases, and especially in cases in which the gastric

mucosa is found to be smooth, firm, and pale, when the stomach is opened, gastro-enterostomy should be performed. This operation drains the chronically inflamed stomach, and at the same time allows the food to pass into the intestines.

TRAUMATIC ASPHYXIA.

Traumatic asphyxia or apnea is produced by forcible compression of the thorax so that breathing cannot take place for several minutes. The number of cases that have recovered, cases which have been studied in life, is very small. BEACH and COBB (*Annals of Surgery,* April, 1904) have found it possible to find in all the literature but six cases—three boys about fifteen years of age; the others, including the writers' case, being young adults between twenty-two and thirty-six years old. In all of these the dominant and diagnostic feature was the blue-black discoloration of the skin, mainly confined to the face and neck above the clavicle; in one the discoloration extended into the forearm for some distance; and in another it extended over the chest wall to the second or third ribs.

The authors' case was a large, muscular German, aged thirty, who had been caught and held by a moving freight elevator. The elevator was stopped, and the man released in from three to five minutes. While this was being done his face became black, blood ran from his nose and mouth, and his eyes protruded. He was unconscious for a few minutes after being released.

Examination one hour after the injury was as follows: Perfectly conscious, but dull and sluggish; in a state of moderate shock; temperature 99.5° F.; signs of violent trauma extending from the groins and buttocks to the mid-thoracic region. The entire face, head, and neck were very dark-blue in color, and there was marked subconjunctival ecchymosis of both eyes. Pressure on the blue-black skin did not cause it to pale completely as in cyanosis, but on the contrary had little effect.

The patient recovered. At no time was he very sick, except on the third day his temperature rose to 106° F., and he had labored breathing and slight bloody expectoration, and both lungs were full of râles; this condition, however, passed away in twenty-four hours. The discoloration disappeared rapidly after the third day, apparently simply fading out; and three weeks afterward the patient's face seemed almost normal, having only a slight congested appearance.

Examination of two pieces of skin removed under cocaine anesthesia proved that the discoloration was due to a stasis from mechanical overdistention of the veins and capillaries. As to the cause of the sharp limitation of the color to the head and neck, the writers are inclined to consider rational the theory of Perthes, which ascribes it to the lack of valves in the jugular and facial veins.

From the very nature of the injury and its attending circumstances, surgical aid can rarely be on the spot except as a coincidence. It is rational to suppose, however, that the immediate use of artificial respiration and oxygen might resuscitate certain of such cases if it could be applied at once; the cases that survive without such aid will always be extraordinarily rare.

The secondary treatment, aside from combating shock, must be symptomatic. On the second or third day in certain cases pulmonary complications, with pyrexia, bloody expectoration, and labored breathing, may appear. This condition Perthes called a "contusion-pneumonia;" it may be expected to subside rapidly and not to result fatally.

STRICTURE OF THE FEMALE URETHRA.

His experience in a number of cases induces JOHNSON (*Journal of the American Medical Association,* April 2, 1904) to invite attention to that infrequently observed affection, stricture of the female urethra, to the various phases of the complaint, and to the proper treatment.

Strictures of the female urethra are narrowings of the intima of the canal to a greater or less degree, which impede or prevent the passage of the urine by the natural course from the bladder. Congenital atresiæ are usually located at the neck of the bladder, or in the upper third of the urethra, but the obliteration of the entire canal or its absence has been noted. Acquired cases, if traumatic, are situated at or near the site of the injury, while if

non-traumatic they are usually found in the middle third of the urethra.

The causes are congenital malformation, traumatic, internal, or external, associated with abnormal, prolonged, or instrumental labors; injuries of the genitals from burns, scalds, falls, cicatrices following operations, and contractions from the free use of caustics; inflammation and infection from gonorrhea, urethral chancre and chancroid, septic instruments, urethral masturbation, tumors and adhesion bands in vagina. Tumors within the urethra are said never to cause stenosis or atresia.

Diagnosis is based on discovery of stenosis or atresia by the use of olive-pointed sounds, bougies, or metal catheters. The condition of the urine even in advanced cases is often misleading. Infrequency of the disease causes delay in diagnosis; therefore no physical examination in "disease of women" should be considered complete until the catheter has been passed into the bladder.

Prognosis is favorable in acquired stenosis or atresia, except where advanced bladder or kidney disease exists from infection or distention. In congenital atresia it will depend upon the complications in individual cases.

Treatment of acquired stenosis or atresia consists of gradual or rapid dilatation with olive-pointed sounds, bougies, metal catheters, urethral or uterine dilators, and in some cases cutting or incision. Constitutional medication should invariably follow surgical correction of stenosis or atresia from urethral chancre. Cicatricial bands in the vagina contracting the urethra should be incised and loosened. Bladder and urethral irrigation and flushing should be practiced in all cases. Treatment of congenital atresia will depend on the extent and character of the complications. It may be necessary in extreme distention to puncture the bladder to evacuate its contents, or incise, making either a vesicovaginal or a urethrovaginal fistula, before opening the atresia, closing the incision or fistula after the integrity of the reconstructed urethra is assured. Atresia complicated with vesicovaginal fistula should be dilated or incised, subsequently closing the fistula. Atresia complicated with urine escape through a patulous urachus should be dilated or incised without making a vesical fistula. After the course of the urine has been changed, the patulous urachus is supposed to close and atrophy. (A patulous urachus is sometimes observed in abdominal surgery.) Reed advises as follows:

Where the atresia of the upper part of the urethra is associated with the vesicovaginal fistula, the operator may cut out the portion of the urethra and unite the neck of the bladder to the portion of the urethra below the excision. If atresia exists between a urethral fistula below and a vesicovaginal fistula above, the readiest way to deal with it is to thoroughly loosen the tissue and bring the upper edge of the vesical fistula down to the outer edge of the urethral fistula. To unite such a fistula, however, a combination of the transverse and longitudinal operation may be done. A transverse incision may be made by making an artificial vesicovaginal fistula just above the neck of the bladder. The upper edge of this can then be stitched to the lower edge of the urethral fistula, and after healing has taken place the edges of the original vesicovaginal fistula can be closed by stitches so placed as to bring the edges together from side to side, leaving a longitudinal scar.

FRACTURE OF THE ACETABULUM.

DESTOT and DURAND (*Lyon Médical*, No. 9, 1904) have collected nineteen cases of fracture limited to the floor of the cotyloid cavity. These fractures are produced by a fall or blow on the great trochanter. It has been impossible to produce this fracture experimentally in the dead subject, hence the mechanism of its production is not clearly understood. Depending upon whether the free margin of the fragment projects upward or downward, rectal examination may or may not determine the diagnosis.

In some cases the symptoms resemble those of a mild contusion. Tenderness may be elicited by pressure over the fold of the groin, or by percussion on the knee, or great trochanter. There is some local swelling with prominence of the inguinal region and Scarpa's triangle. Slight flexion with partial external rotation (the latter easily corrected but recurring) is of inconstant occurrence. Movements of the joint are painful, and the range of motion

is limited. In the absence of direct traumatism a single area of nummular ecchymosis in the median line of the most dependent part of the scrotum, appearing several days after the receipt of the injury, is almost pathognomonic of fracture of the cotyloid cavity.

Positive diagnosis is made by rectal and *x*-ray examinations.

This fracture is prone to be followed by chronic arthritis and partial ankylosis, which may cause prolonged or permanent crippling.

In some cases it may be possible to reduce the fragments by manipulation through the rectum. Rest and extension are indicated in the early stages. Later, massage and passive movements are helpful. If chronic arthritis develops, methodical movements, massage, electricity, hot douches, and thermal treatment may be employed.

ARREGGER (*Deutsche Zeitschrift für Chirurgie,* February, 1904) presents the following conclusions after a study of 23 cases in which there was a central dislocation of the head of the femur in addition to a fracture of the acetabulum:

1. Central luxation is the rarest form of dislocations of the hip, and is produced by the rapid action of a great force exerted upon the trochanter, driving the head of the femur through the acetabulum into the true pelvis.

2. The principal symptoms are: (*a*) External rotation of the leg, which can be corrected easily, and as a rule painlessly, but tends to recur slowly when the correcting force is removed. (*b*) Shortening of the distance between the symphysis and the trochanter; situation of the trochanter in the axillary line; simultaneous presence of an extraperitoneal hematoma. (*c*) Projection of the head of the femur and fragments of the acetabulum into the true pelvis.

3. Diagnosis is based on rectal or vaginal examination combined with the evidence afforded by a radiographic picture of the bony pelvis. Examination should be made cautiously to avoid injury of the intestines or bladder.

4. (*a*) If possible the head of the femur should be replaced, and lateral and longitudinal extension instituted, with early resort to orthopedic treatment; or a plaster cast extending well above the border of the ribs may be applied. Efforts at reduction by way of the rectum should be avoided. (*b*) If the head of the femur is irreducible, elevation with splints, or extension, should be employed. (*c*) In cases in which the thigh is in very bad position, or in which there is evidence of pressure of the femoral head on the pelvic viscera, the pelvis should be resected and the head of the femur replaced. (*d*) Appropriate treatment should be instituted for any complications such as hemorrhage, or lesions of the bowel or bladder.

5. In mild cases properly treated the prognosis is favorable. A functionating socket for the head of the femur is formed inside the pelvis from the fragments of the acetabulum. Recovery requires several months. Disability is permanent. In severe cases death usually results in a short time from shock, sepsis, or injury to the viscera.

WILMS (*Deutsche Zeitschrift für Chirurgie,* February, 1904) believes that the customary treatment by simple extension is not the best method of drawing the head of the femur out of its abnormal position. Reduction can be more certainly attained by flexing the thigh at the hip, and moderately adducting it. The limb may be suspended in this position, or supported on a suitable splint. Ankylosis is prevented by passive motion at the end of three weeks.

RESECTION FOR PYOTHORAX.

The deficiency of accepted routine operations in cases of old pyothorax has led BECK (*Annals of Surgery,* March, 1904) to employ methods of procedure which are intended to fit each individual case. That is to say, the plan of operation is perfected while the surgeon operates.

The *modus operandi* of this exploratory method consists in resecting the rib which lies approximately in the middle of the roof of the cavity, regardless of the pleural fistula. The fistula is utilized for the passage of a sound, but during the operation itself it is avoided. The pleura underlying the resected rib is now incised. By means of a lateral incision enough room is gained to inspect a large part of the cavity and to palpate the cavity walls.

If the cavity is small and the patient is

in a fairly good condition, the next two or three ribs are resected from the vertical incision in proportion to the extent of the cavity beneath, while the soft parts are held back with sharp retractors. The costal pleura is then excised by means of a blunt-pointed knife. If the fibrous tissue is very hard, the lumen of the intercostal arteries is so much diminished by compression that the hemorrhage can be regulated by temporary pressure. The soft parts and ribs may be divided at the same time. In more extensive cases the ribs are divided successively in the same manner; the presumptive length of each piece is ascertained by palpation as it is incised. Palpation also determines whether the pleura below the ribs is still elastic or must also be sacrificed. The incision of the soft parts proceeds likewise, which results in a very irregular looking flap. No particular attention need be paid to the shaping of the latter, as it must depend more or less upon that of the cavity. Cross-incisions, accordingly, may also be made. If a portion of the scapula is found to be in the way it is excised.

The muscular flap set free by the resection of the scapula can be utilized for the purpose of partly filling up the underlying cavity.

A not rare occurrence, yet one probably not mentioned in literature, is the concave arrangement of the lung surface which overbridges a certain amount of the cavity. The lateral parts of the pulmonary pleura attach themselves to the costal pleura, fibrous adhesions holding them there. The middle portion, however, does not follow, and represents the floor of a cavity over which the approximated sides form the roof.

Special caution is necessary at the beginning of the operation. If in a case of this kind the operator were to incise directly without first exploring the cavity thoroughly after the resection of the first rib, he might injure the lungs. But if he locates the position of pleuræ junction it is possible to finish the process by blunt dissection after having carefully divided the fibrous tissues. The lateral portions then gape apart and the pulmonary pleura becomes flat. Partial decortication is indicated in such a case. The right half of the lung is particularly prone to this sort of adherence.

The following procedure will be found of service in the resection of that part of the costal dome which covers the pleural cavity; the method is simple, comparatively safe, and can be performed to a limited as well as to a large extent, just as the case demands it.

With the arm at a right angle, the incision is led close to the lower border of the pectoralis major muscle in a horizontal direction till it ends at the lower part of the anterior margin of the deltoid muscle. The muscles are then dissected back superiorly until the axillary region is free. The vessels and muscles are grasped by strong blunt hooks and pulled upward. Sometimes separation is possible only by the aid of lateral incisions into both pectorales. Thus the vessels are temporarily held out of danger, and the ribs can be removed according to the indicated principles. If it is very difficult to reach the first rib by means of the pectoro-axillary incision, then the clavicle may be resected temporarily. The decorticated flap is then trimmed and placed on the pulmonary surface of the pleura. If pieces of the pulmonary pleura have been removed, agglutination is much easier. The callous areas of the pulmonary pleura should also be removed; this is accomplished by flat, saw-cutting incisions similar to those made in preparing microscopical sections. In most cases a resection of the chest wall must be added to decortication of the pulmonary pleura.

An annular periostome and elevatorium rib-shears are used for dividing the rib. The first is a sort of aneurism needle, but flat, and formed to embrace the rib. After the dissection of the periosteum it serves as a retractor. It is combined with an elevator. The shears can be taken apart so that both halves can be applied separately, as in the obstetrical forceps.

The cavity is packed with iodoform gauze. Immediately after the operation this is done tightly, later on loosely. Then drainage tubes, enveloped by iodoform gauze, may also be used. Thus irrigations are not only rendered unnecessary, but are in fact harmful.

During the after-treatment stress is to be laid upon early gymnastics, which favor expansion of the lungs. To this end dumb-bells and practice on a bugle are recommended.

GONORRHEA IN THE MALE—ABORTIVE TREATMENT.

The views for and against the abortive treatment of gonorrhea are varied, but BIERHOFF (*Medical News,* March 12, 1904) records the results of this form of treatment in a series of thirty cases, and claims that the low percentage (6.6, or 2 out of 30) of the cases in which a posterior urethritis (prostatitis) developed demonstrates the utility of this procedure. Compared with the high percentages reported by other investigators, it proves that the abortive treatment of gonorrhea is possible; that if employed early the percentage of cases in which a positive result is obtained is a fairly large one; that when one employs only those drugs which, while they kill the gonococci, do not injure the mucous membrane, the percentage of complications will most likely be smaller than heretofore; and that should the attempt to abort the disease fail, the patient will not have been injured.

The author recognizes the prophylaxis as the ideal treatment and recommends the instillation of 2 to 3 drops of a 10- to 20-per-cent solution of protargol in glycerin into the fossa navicularis, as soon as possible after the suspicious coitus. In one case the gonorrheal infection was discovered within ten hours after the suspicious intercourse, and the disease aborted with a single injection of 8 cubiç centimeters of a two-per-cent protargol-glycerin-water solution. This case, not included in the thirty referred to, came under control and displayed on the first examination distinct, although few, gonococci in the urethral scraping; at several points there were already distinctly gonococcus-bearing pus cells. Control examinations were made after one, four, eight, twenty-four, and forty-eight hours. In one hour the secretion, which was called forth profusely by the injection, was free of all germs and remained so, this fact being determined by repeated subsequent control examinations during a period of several months. The discharge rapidly lost its purulent character, after the cessation of treatment, to become purely epithelial within twenty-four hours, and disappeared entirely after another twenty-four hours. Many a gonorrheal infection of low virulence dies out, upon the epithelium of the fossa navicularis, without its bearer having been aware of the fact of the infection.

The sooner abortive treatment is begun, the greater the chances of success, in the absence of complicating conditions resulting from the presence of the remains of preëxisting disease like chronic infection of the lacunæ, glands of Littré, or prostate; and congenital malformations of the urethra, such as paraurethral passages, or abnormal width or depth of the lacunæ.

The method of treatment has varied with different investigators. Ricord, Debenay, Diday, and others employed injections of nitrate of silver in solutions up to 5 per cent in strength. According to the reports of most of the observers, the reaction following the abortive attempts with nitrate of silver solution is very severe, and at times serious complications arise, resulting even in death, as in a case reported by Cullerier and Guyon.

Another variety of the abortive treatment is the application of Janet's method and its modifications. The irrigations with permanganate of potash are recommended by Janet himself, by Valentine, Goldberg, and others; Wossidlo, Horwitz, Weiss, and Christian express themselves against the method as an abortive.

Bierhoff employs a modified form of the treatment devised by Frank and Lewin. A microscopical examination of the secretion is first made. If the discharge be slight, and if the majority of the gonococci still be extracellular, the protargol solution is employed in the strength of one-sixth to one-third per cent. If the discharge be at all pronounced, or if the greater part of the gonococci be intracellular, a one-third to one-half per cent solution is used.

The method is employed, naturally, in those cases only in which the urine is clear. After urination the urethra is anesthetized by the injection of a mixture of 4 cubic centimeters of a one-per-cent cocaine solution and 4 cubic centimeters of a one-per-cent protargol solution. After this the anterior urethra is cleansed with 150 cubic centimeters of the protargol solution. Following this an irrigation of the entire urethra is made according to Janet's method, with 150 cubic centimeters of the solution. The patient

then empties his bladder of the irrigated fluid. This irrigation of the entire urethra, with immediate emptying of the fluid, is repeated from one to three times at the same sitting, so that the urethra is flushed four to eight times. In addition, the patient is given a solution of protargol (one-half per cent), with which he is instructed to inject three to five times during the day, and to retain the fluid ten minutes each time. During the succeeding days, if the gonococci have disappeared, the strength of the solution and the quantity of the fluid injected are diminished, to be suspended if the result be positive, on the fourth or fifth day at the latest. The injections by the patient are also diminished and suspended in a similar manner. Then follow the usual provocative tests and control examinations.

The continued absence of discharge, and the absence of gonococci from the shreds (which should be only minimal and chiefly epithelial) from the prostatic secretion (which must also be free from pus-cells) and from the urinary sediment, in spite of the tests of cessation of treatment, indulgence in alcoholics, irritating injections, and coitus condomatus, are a proof of cure, if after control examinations covering a period of several weeks the patient still remains free of gonococci. Cultures should be employed in every doubtful case, though they are not absolutely necessary to determine the fact of a cure.

In the thirty cases in which this method was employed, the result was positive in fifteen (50 per cent); negative in fifteen (50 per cent).

In the positive cases the gonococci had definitely disappeared in twelve on the second day, in one on the third day, in two on the fourth day. The duration of the treatment and the tests varied from five to twenty days. In two cases the fresh gonorrheal infection occurred in the persons of patients who were under treatment for old, endoglandular, non-gonorrheal prostatitis, and in neither of the cases did the gonorrheal infection extend to the prostate. The period of incubation was two days in five cases; three days in four cases; four days in three; five days in one; six days in one; two to three weeks in one case. The patients presented themselves on the first day of the discharge in ten cases, on the second in one case, on the seventh and eighth days in two cases, on the thirteenth day in one case, and on the forty-seventh day in one case. In none of these cases was it a first infection; in four cases it was a second, in four a third, in four a fourth. In the remaining three the exact number of preceding infections was not obtainable, but in all it was at least the second infection.

Of the negative cases, the gonococci had definitely disappeared in two cases after the fifth day (so that these cases might even be classed as positive results), in three cases after the tenth day, in one after the sixteenth day, in two after the twenty-first day, in one after twenty-two days, in one after thirty-five days, in one after thirty-six days, in one after forty days, and one case is still under treatment. Two cases withdrew from observation before the gonococci had disappeared. The duration of the treatment and testing varied from fourteen days to a period of over five months. (In the case of the patient still under treatment, an infection of a lacuna about 3 centimeters in depth has protracted the disease abnormally). The period of incubation was two days in four cases, three in five cases, four in one case, five in one case, six in two cases, three or six in one case, and twenty days in one case. Ten patients presented themselves on the first day of the discharge, one on the second day, three on the third, one on the sixth. In three cases it was a first infection, in five a second, in four a third, and in three the number was impossible to determine, although it was at least the second. The cause of the negative result was, in six cases, the involvement of the glands and lacunæ of the anterior urethra; in one case the infection, in a mild degree, of the prostate, in a patient who repeatedly subjected himself to sexual excitation. In one case (one of the patients who withdrew from treatment) the urethral glands and prostate became infected upon an old, postgonorrheal catarrhal inflammation, for which he had been treated prior to his gonorrheal reinfection. In six cases there was no demonstrable cause for the negative result; but these were all cases that could be discharged as cured in from three to five weeks; in one case (the second pa-

tient, who withdrew from treatment) the gonococci were almost entirely gone at the time of his departure.

PHARYNGEAL LESIONS OF SYPHILIS—RECOGNITION AND TREATMENT.

A brief outline of his experience in recognizing and treating the pharyngeal lesions of syphilis is given by SOMERS in the *Medical News* of March 12, 1904.

He believes that syphilitic erythema, as a secondary manifestation of the disease, may be and often is mistaken for catarrhal pharyngitis or tonsillitis, although the erythema is usually symmetrical, being limited in outline by abrupt, well defined margins from the healthy mucosa. While the color of the affected area is not always characteristic, yet it differs from that of simple erythema in presenting a deeper brick-red, or more of a copper hue, and as a further characteristic there is a marked tendency to the development of small, irregular patches of cloudy swelling of the epithelium, shown in this form by linear semitranslucent areas or minute irregular-shaped patches.

When these areas of epithelial change become larger, well defined, and present a whitish or bluish-white color, they constitute the second phase of syphilis—the so-called mucous patch. Oval, circular, or stratiform in shape, they present a slight elevation upon the somewhat swollen and hyperemic mucosa, and partake in their symmetry of the disposition of erythema in this respect. The most constant site is upon the soft palate, pillars, and tonsils. They are also seen where irritation exists, especially at the sides of the tongue, and either here or on the buccal surface in the immediate vicinity of a diseased tooth.

The early recognition of these lesions is essential in order to prevent tissue destruction that may seriously endanger life. The areas of tissue disintegration, at first shallow, cover a wide, irregular surface, and rapidly cause the soft tissues to melt away, while the affected parts are covered with a thick, mucopurulent, offensive secretion. Unlike other affections seen here, the tendency to disintegration and perforation of bone is most marked, and with little or no pain a large ragged opening may be produced rapidly between the oral and nasal cavities. Osseous destruction is especially marked when an ulcer occupies any portion of the palate. The author has seen a few cases in which tertiary ulceration of the tonsils was treated for several weeks as well marked cases of diphtheria.

In both erythema and mucous patch, examination of other parts of the body will usually reveal the scar of the chancre; the dermal eruption will be well marked, or in case the latter has faded away some discoloration in more or less symmetrical areas will usually give a clue to the nature of the throat lesions, while in tertiary ulceration, with both these factors indistinguishable, dependence will have to be placed on the postcervical glandular swelling, and, if present, on the nodular swellings over the tibia region.

While both local and general medication have their place in the care of the syphilitic patient in whom the pharynx is involved, yet the latter is of far more importance, many cases receiving no added benefit from local applications. For the erythema mercury is essential, and usually the protiodide in one-quarter to one-third grain doses, two or three times daily, will rapidly cause this symptom to subside. In occasional cases an astringent gargle, such as that composed of rhus glabra, will accelerate the disappearance of the congestion.

The same form of mercury has also given the best results in the treatment of the mucous patch, but often the area of epithelial degeneration proves rebellious to treatment, and the occasional application of a 20- to 50-per-cent solution of nitrate of silver will be of material aid. In other cases where the silver salt is apparently of no value, chromic acid, applied locally by moistening a few crystals on the end of an applicator tightly wound with cotton, often will cause the rapid disappearance of the patch. In the mucous patch seen well on during the early tertiary stage of syphilis mercury often is of no benefit, and in a few cases apparently aggravates the condition. Under these circumstances, three- to five-grain doses of potassium iodide will usually produce marked relief, and the necessity for local treatment, either with mineral astringents or with caustics, will be obviated.

The indications for treatment of the tertiary syphilitic ulceration demand most active measures, as the tissues break down almost within a few hours, and serious if not fatal consequences must necessarily ensue, unless the destructive process be checked within a very short time. Iodide of potash should be immediately exhibited in from 15- to 20-grain doses, three times daily, and increasing the amount by five-grain doses until a favorable action upon the syphilitic process is observed or tolerance is reached. Frequently one, two, or three hundred grains daily will be necessary; the amount used should depend entirely upon the result obtained. At the same time mercury in the form of the bichloride or protiodide should also be administered, and in severe cases, especially when the osseous tissue is beginning to break down, it should be given either by hypodermic injection or inunction. Locally necrosed bone should be removed when it has separated from the surrounding tissues, exuberant granulations controlled, and a cleansing antiseptic mouth-wash may be ordered to remove the purulent débris.

DACRYOCYSTITIS—MODERN TREATMENT.

Siding with those who advocate a more rational and radical treatment in catarrhal affections of the lacrimal sac, WIENER *(Medical Record,* April 2, 1904) discusses especially the best treatment to pursue to abate in the quickest way a condition attended by such serious damage to the eye.

If a stenosis of the lacrimal duct exists, dilate the puncta of the inferior canaliculus with a conical-shaped sound, in order to introduce the nozzle of an Anel's syringe. Should this not be possible, simply slit up the inferior canaliculus, and the introduction is now an easy matter. Inject a sterile physiological salt solution into the sac, and observe the direction which the fluid takes. If the stenosis is not very marked, almost all the fluid will pass into the nose, only a small portion appearing at the puncta above. If very much contracted, then only a small portion will appear in the nose, and the greater part in the eye. If the stricture is complete, none will pass into the nose. Examine the nose carefully and note the condition. If in doubt, cocainize the inferior meatus, to ascertain whether this closure or constriction is due to a simple engorgement, or to actual hypertrophy of the parts. If an atrophic catarrh is found, the stricture is undoubtedly of a cicatricial nature.

If the case is of short duration, and only a partial stenosis is present, a proper treatment of the nose, together with massage and syringing of the sac, will in a short time bring about a cure. In order to determine the nature of the stricture, employ the olive-shaped bougie of Kuhnt. In order not to do any damage to the mucous membrane of the sac, it is best to slit up the inferior canaliculus. According to the method of Kuhnt, ascertain at once the condition of the nasal duct. If there is a true organic stricture of not too long duration, and the contents of the sac are not purulent, resort to Passow's method of relief. This consists in a removal of the anterior portion of the inferior turbinated bone, its lacrimal process, together with the inferior turbinated crest on the superior maxillary bone, thus laying bare the membranous canal of the nasal duct. The nasal duct is then slit open, up to the neck of the sac. The entire operation is accomplished intranasally, under cocaine, in one or two sittings.

If the patient and physician possess an abundance of patience, syringing, massage, and sounds may be employed for the severer cases. Some patients may recover under such treatment, but relapses will be frequent, and the risk of a corneal infection must be borne in mind. It sometimes happens that in the newly-born infant a congenital atresia of the duct is observable, giving rise to a dacryocystoblennorrhea. Here a slitting of the canaliculus and very careful probing, together with massage and syringing, brings about a cure.

If the above treatment is of no avail, those who favor extirpation have established for themselves these indications: (1) In fistula of the lacrimal sac after long-continued suppuration (acute cases excepted). (2) In chronic blennorrhea of the sac, with or without ectasia. (3) In chronic catarrh of the sac with an organic stricture. (4) In chronic blennorrhea when disease of the bone with caries is present. (5) In relatively fresh cases of

blennorrhea, under the following conditions: (*a*) In ulcus serpens when the healing is very much favored by an immediate extirpation of the sac; (*b*) when an operation for cataract or glaucoma is contemplated; (*c*) in fresh injuries of the cornea. (6) Tuberculosis of the sac.

In regard to the best way of destroying this sac, either the actual cautery or chemical reagents mean long-continued treatment, they are uncertain, and furthermore leave a scar which is ugly and unyielding.

In experienced hands it is a simple procedure. In the majority of cases no general anesthesia is necessary. The entire extirpation can be done under the influence of cocaine and adrenalin, and without the slightest discomfort to the patient.

A typical operation, with some slight modifications from the Schreiber and Axenfeld method, is the following one: Make an incision, half-moon-shaped in form, two and one-half centimeters in length, and about one-half centimeter from the inner canthus of the eye. The incision is begun just above the internal palpebral ligaments. At first it passes only through the skin and subcutaneous tissue. The edges of the wound are now held apart by means of a Mueller's speculum. This answers the purpose of a retractor and assists very materially in controlling the hemorrhage. Should the hemorrhage be very profuse, then the use of the Axenfeld speculum, which holds apart the upper and lower edges of the wound, will be of great assistance. Now cut through the thin layer of muscle, then through the fibrous capsule; one comes directly upon the wall of the sac. Often it may not be possible to distinguish between these various layers, especially in old chronic cases, in which adhesions have already formed, from an extension of the process through the walls of the sac. If at all possible, and this can usually be accomplished if one is careful, do not open the sac, as a soiling of the wound with the contents of such a sac may produce an infection, and thus delay healing. The sac is carefully dissected out with a dressing forceps and dull-pointed scissors. First, the inner wall is separated from the groove with the dull point of the scissors, then the sac is cut off above from the canaliculi, and the posterior wall is detached. Now, holding the sac firmly at its upper the sac cut off close to the beginning of the nasal duct. If the sac has been entirely removed, there will be left a perfectly smooth cavity representing the lacrimal groove. With a small curette, establish a communication with the nose through the nasal duct. This serves for the slight drainage of the wound, which is necessary. Now close the wound with three or four sutures as is found necessary. Place upon the sutured wound a small roll of iodoform gauze, over this several layers of plain gauze, and then a firm pressure bandage. After two or three days the dressing is changed, and by the seventh day the healing is complete in a typical normal case. After three weeks it is almost impossible to detect the area where the operative invasion has been made. In some cases it is not always possible to remove the sac *in toto;* it must be taken out piecemeal. Be most careful in these cases to search for each little portion of the sac. If only a small portion remains behind the wound will not heal. A discharge will make itself apparent either at the puncta or into the nose. A good procedure to follow, just before extirpating what is believed to be the sac, is to pass a Bowman sound through the slit inferior canaliculus, and in this way determine the exact position of the entrance of the canaliculi into the sac, the exact position of the sac, and its termination at the nasal duct.

Statistics prove that extirpation of the sac for the above indications will positively diminish the number of corneal infections.

FRACTURE OF THE NECK OF THE FEMUR—NEW TREATMENT.

The number of patients, crippled in vigorous life, who have sought treatment months or years after the injury, not merely for functional disability but for persistent discomfort and pain, has stimulated WHITMAN *(Medical Record,* March 19, 1904) to devise a treatment for fracture of the femur applicable to those well along in years. It is claimed for this new method that improved functional results are far more likely to be obtained by it than by any other method. First suggested as particularly applicable to childhood, the new measure is urged for all

in which local treatment is to be attempted.

A piece of ordinary seamless shirting, such as is used for plaster jackets, about six feet in length, cut and sewed in a shape to cover the body and the limb, is first applied, and is fixed securely in place by bands passing over the shoulders. This is threaded with several long bandages, the "scratchers," designed to keep the skin in good condition. It is also advisable to insert a substantial "dinner pad." The patient is then anesthetized and is placed in position for the application of the bandage. The head and shoulders may be conveniently supported on a box of proper length and about eight inches in height; the pelvis rests upon a sacral support. This is a thin plate of steel about the size of the hand, of a trowel or heart shape, carried on an upright bar fixed to a wide base or screwed to the end of the table. Such a support is almost indispensable, because it does not interfere with the proper application of the posterior surface of the spica, as do the blocks or other supports in common use. A wide, firm band of cloth is then carried about the perineum, the two ends of which, united over the shoulder and held by an assistant, furnish counter-traction. If the fracture is incomplete, as is usual in young subjects, the limb under gentle traction is slowly abducted, an assistant at the same time abducting the sound limb to prevent the tilting upward of the pelvis, and to demonstrate the normal range. If the fracture is complete, the shortening is first entirely overcome by the traction and counter-traction. The limb in the extended attitude, under traction, is slowly abducted by the assistant until the trochanter is fairly apposed to the side of the pelvis; the operator meanwhile pressing the trochanter downward and inward. In some instances there is a distinct snap as the outer part of the neck slips beneath the rim of the acetabulum, and in any event the abduction is increased until the trochanter is firmly apposed to the side of the pelvis. In the first instance, the primary object of the abduction is by leverage against the upper border of the acetabulum to overcome the deformity; in the second, by tension on the capsule to remove folds, to appose the fragments, and by actual contact of the bone with bone to oppose redisplacement.

The limb being held in this attitude, the pelvis, the ribs, the bony prominences of the knee and foot are protected with layers of sheet wadding, and the limb and body are then covered in carefully with cotton flannel bandages, which are in themselves a protection against pressure. A plaster spica is then applied, extending preferably from the mammary line to the toes. This should be drawn snugly about the hip, and, most important of all, should completely enclose and support the buttock, not only to provide anteroposterior support, but to prevent the excoriations that are inevitable if the tissues are allowed to hang over the edge of the plaster. The insertion of thin strips of wood or iron about the hip and knee permits of a lighter bandage than would otherwise be possible. When the bandage is completed it is carefully cut away to allow complete flexion of the sound limb, the shirting is drawn over the edges of the bandage, carrying beneath it the cotton, and is sewed preferably to an outer cover of shirting drawn over the bandage. Thus a smooth, even surface is apposed to the body, and the skin may be kept in condition by drawing the friction bandages back and forth at intervals. These bandages, popularized by Lorenz, are always placed beneath the body part of the spica, and with the exercise of a little ingenuity their use can be extended to the limb also.

For greater precaution it may be advisable to cut openings in the plaster at all points where pressure is feared, and a part may be cut away from the front of the body part if the constriction is too great.

As a rule, the support is comfortable because it is efficient, and it permits the necessary movements of the patient and even transportation from one couch to another without fear of displacing the fragments. In fact, the use of the plaster spica support in the treatment of adults is so common in orthopedic practice that it hardly needs discussion. It is true that its proper application requires some care and skill, but surely not greater than are demanded in other surgical emergencies, nor more than one has a right to expect from those who propose to treat this class of injuries.

The long spica is most efficient in that it absolutely prevents rotation of the limb, but the short spica may be used in im-

pacted or incomplete cases, in which displacement is unlikely, or if a less burdensome support is desired. The steps in the application are the same, except that it is molded more accurately about the pelvic crests and the joint, and is made especially thick and strong. It is then cut away so that a band not more than four to six inches in width remains across the front of the abdomen. The lower extremity may be carried a little below the knee to fix the part more securely, or cut away to allow free movement at this joint, if desirable.

The short spica permits the patient to assume a semireclining posture, and if the limb were during the application slightly flexed, it would allow the patient to assume practically the sitting posture. Such variations in technique might be required by the condition of the patient.

If the long spica is used, it may at the end of four weeks be shortened to allow action at the knee, and at the end of eight weeks, or when it may appear that union is assured, it may be removed.

At this time massage and passive and voluntary motion may be employed, regulated, of course, by the sensations of the patient. The limb should not be used to support weight for at least four months. A hip brace that will permit functional use by supporting a part or all of the body weight, combined with massage, is of course the ideal after-treatment. This is, however, not attainable for ordinary cases, and the best routine method is the use of a light, short plaster spica holding the limb in moderate abduction. At first the patient uses crutches, and resumes weight-bearing little by little.

The best time for the application of the treatment is, of course, immediately after the injury, for with the comprehensive support of the entire limb, from the toes up, there is little danger of constriction. In fact, it is probable that in many instances the local swelling is aggravated by want of support, and that the persistent edema of the limb that is occasionally observed is secondary also. If, however, the bruising were extensive, sand-bags and traction might be employed as preliminary to the application of the fixed dressing. The question of after how long an interval treatment may be applied with hope of success is of far greater importance. It would seem that one could hardly hope to break up an impaction after an interval of more than three months, but it would appear that in certain of the incomplete fractures consolidation is delayed for a long time, as is evidenced by the symptoms of insecurity, and by the pain on motion of which the patient so often complains. The cases of complete separation in which the fragments have never been apposed might merit treatment at a much later time.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC AND IN GYNECOLOGY.

In discussing anesthetics, MONTGOMERY and BLAND (*Journal of the American Medical Association*, April 2, 1904) express wonder that in view of the many advantages of ethyl chloride its salutary effects have been so long overlooked. One probable explanation for this is its excessive volatility, which renders it rather difficult to utilize, and the associated expense, which still renders its use unlikely in a general clinic.

Physically, ethyl chloride is a clear, colorless liquid of rather pleasant odor, with an aroma somewhat similar to chloroform. It evaporates very rapidly at an ordinary room temperature, and therefore must be kept in hermetically sealed vehicles. The specific gravity of this substance is 0.92. Its boiling point is 12.5° C. It is a highly combustible agent, and in burning emits a yellowish-green flame.

The physiologic action of ethyl chloride still remains a disputed question, though the teaching generally accepted is that at first the influence of the agent on the circulation increases the frequency of the pulse-beats. There is usually a slight decrease in arterial tension in patients with a normal circulatory apparatus, with no decided disturbance in the pulse-beat. There is a certain increase in the frequency of the pulsations at the beginning of the administration, but this is due to the pscychic disturbance of the patient and not to any direct action of the drug. Some investigators have observed that the respirations are generally stimulated both in frequency and depth, while a point to be emphasized is that very little irritation results from the administration of ethyl chloride on the respiratory mucous membrane. Furthermore, the distressing and

often embarrassing condition of excessive secretion is scarcely ever observed.

As a general anesthetic, ethyl chloride is one of the safest agents now at the disposal of the practicing physician. Lotheissen asserts that statistics place chloride of ethyl next to chloroform in regard to its mortality, but from general statistics it may be that his convictions as to its safety have been fostered by the serious results obtained in one of his patients, and that his figures are far too high. The wide diversity of opinion concerning the safety of this drug as a general anesthetic is due, probably, to its comparative newness. It is believed that future experience will prove it to be decidedly safer than chloroform, possibly safer than ether, and undoubtedly safer than its sister anesthetic, bromide of ethyl.

Ethyl chloride can be administered for the purpose of inducing general anesthesia by simply spraying it on a gauze compress, although one of the specially devised inhalers may be used. A cone made of ordinary cardboard covered with gauze, with its base so constructed as to fit snugly over the face of the patient, has proved of good service. Several layers of gauze are secured over the opening over which the anesthetic is to be sprayed. A rapid evaporation or escape of the agent is prevented or minimized by placing a gauze pad over this.

In administering ethyl chloride for the purpose of securing general narcosis, the patient should be prepared in the usual way. The cone is applied tightly over the patient's face in order to prevent excessive intake of air, and the patient is then instructed to breathe naturally. The agent is sprayed on the cone more or less constantly from a tube with an opening sufficiently large to allow the agent to escape rapidly. If anesthesia is not effected promptly, two tubes should be used.

The time required for complete anesthesia is usually from one-half minute to two minutes, perhaps longer in some cases. Operative anesthesia is always secured, though relaxation may be more marked in some cases than in others.

Used preliminary to the administration of ether, ethyl chloride rapidly overcomes the excitation resulting from the first stage of ether narcosis. It undoubtedly decreases the amount of ether required, and therefore to a certain extent combats post-etherization nausea and vomiting. Patients have remained under the influence of the anesthetic as long as fifty-four minutes, and under its influence hysterectomy and the various combined operations on the pelvic floor and intrapelvic viscera have been performed.

In gynecologic work, ethyl chloride allays the pain, and relieves muscular contraction in abdominal pelvic examinations, its employment frequently permitting an accurate diagnosis in what would otherwise be an obscure case. The short time required for anesthesia, the rapidity with which the patient recovers from its effects, and the decreased tendency to nausea and vomiting, allow its employment in office practice, with the assurance that the patient can return home without the need of prolonged attention.

The same indications lead to its employment in all operations of a minor character, where prolonged anesthesia is not required. In enfeebled patients needing vaginal incision for pelvic drainage it is an ideal agent, for it need not be administered until everything is ready for the incision, so that the patient is under its influence only a few minutes.

Probably it is most effective as a preliminary to the use of ether or chloroform, by which the distress and sensation of asphyxia produced by these agents is avoided. A nervous woman may be brought quickly under the influence of the ethyl chloride, and the ether or chloroform follow without the patient experiencing the usual discomfort of an anesthetic, and consequently without a struggle. Her convalescence from its effect is more rapid because she has not undergone so thorough a saturation.

The principal disadvantages of the agent as a general anesthetic are:

1. The patient passes under and out of its influence so quickly that the administrator must be unusually careful to avoid profound anesthesia or the emergence from its effects at an important stage of the operation.

2. The cost of the drug excludes its use in a general clinic, though the increased employment of this agent which must follow the general recognition of its value will doubtless result in a reduction of its price.

PERFORATED GASTRIC ULCER—SURGICAL TREATMENT.

When it is remembered that gastric ulcers, either open or cicatrized, are found in 5 per cent of all autopsies, and that perforation occurs in about 6½ per cent of all gastric ulcers, with mortality medically 95 per cent, and surgically 50 per cent, it is manifest, BOYD (*Intercolonial Medical Journal of Australasia,* Feb. 20, 1904) remarks, that the diagnosis of this condition is of the highest importance.

It is not maintained that the diagnosis is invariably easy; on the contrary, it is sometimes exceedingly difficult, but a knowledge of the usual clinical features and a careful examination should result in its more frequent recognition.

Perforation most commonly takes place on the anterior wall, generally nearer the lesser curvature than the greater, and more frequently nearer the cardiac than the pyloric end of the stomach. In most cases there will be obtained a history of the ordinary symptoms of gastric ulcer, but perforation may occur in a patient apparently in good health, and from whom no interrogation will elicit any symptoms of gastric disturbances.

The patient is seized suddenly with an attack of intense abdominal pain, usually so severe as to cause faintness. The pain is frequently referred to the epigastrium or the left hypochondrium; to the abdomen indefinitely; or sometimes (probably when the ulcer is in the posterior wall) to the back between the shoulders or under the left shoulder blade. The situation of the pain is no guide to the position of the perforation. Where there has been a free escape of stomach contents, the pain is often most marked in the lower abdomen. There is usually vomiting, not frequently repeated, small in amount; it may be blood-stained. The pain is in most cases intolerable. The patient is found lying in bed, probably with the thighs flexed. The face is pale, pinched, and expressive of great pain and anxiety; the forehead is moist and clammy, and the pulse is quick, small, and wiry.

The abdominal walls are found to be almost motionless, the respiration being entirely thoracic, and on palpation there is a peculiar board-like rigidity which is almost pathognomonic of the perforation of a hollow viscus. The great importance of this physical sign emphasizes the necessity of its early observance. It is due to the perforation of a hollow viscus, with the escape of gas and fluid contents into the general peritoneal cavity. Should an injection of morphine be administered, the patient may very quickly become comparatively comfortable, and the rigidity less marked; thus rendering subsequent diagnosis difficult, or perhaps impossible.

In the 50 consecutive cases reported by English, liver dulness is noted in 43; it was normal in 11, completely absent in 12, and diminished in 20.

There are cases preceded by more or less indefinite premonitory symptoms, such as pain, sickness, faintness, and some collapse, but before many days a more extensive rupture and escape of stomach contents into the peritoneal cavity may take place, and be followed by the usual well marked symptoms and signs. This is more likely to occur when the ulcer is situated on the posterior wall. In one such case premonitory symptoms were present for three days before the final rupture, when the escape of gas and stomach contents through the foramen of Winslow, with typical signs, enabled a diagnosis to be made, and the case was successfully treated by laparotomy.

It must be admitted that all the symptoms and physical signs of perforation may be present, and yet no perforation be found on opening the abdomen. Such cases should not prevent an exploratory incision in all grave but doubtful cases. With modern methods it involves no risk, except to diagnostic reputation.

In the surgical treatment of perforated gastric ulcer the first essential, according to MOORE (*Intercolonial Medical Journal of Australasia,* February 20, 1904), is immediate operation.

As these patients are generally suffering more or less from shock, they should be kept warm. They should, as a rule, be placed on a warm operating table. An enema of saline solution and brandy should be given. Sometimes, on account of the pain, an injection of morphine will have to be given, which is not a disadvantage, provided the diagnosis has been definitely made before.

The incision should be in the midline, from ensiform almost to umbilicus. As a rule, immediately on opening the abdo-

men, the fact of a perforation having occurred is revealed by the escape of gas, or by the presence of turbid fluid, or by both these conditions. Make a short incision then, midway between the umbilicus and the pubes; pass the end of a tube, attached to a large irrigator containing warm normal saline solution, to the bottom of the pelvis and allow the fluid to flow.

The opening in the stomach is now sought. If, as appears generally to be the case, the perforation is on the anterior surface of the stomach, the affected part can easily be drawn out through the upper incision, and the opening closed while the lotion is freely flowing into and out of the abdominal cavity. If the perforation is situated posteriorly, it will be necessary to stop the irrigation until the opening is found, possibly until it has been sutured. It may be necessary, too, in order to deal effectively with an opening in the posterior wall of the stomach, to make a transverse incision from the midline through the left rectus muscle.

The ulcer should never be excised. Simply invert its edges by means of Lembert's sutures, deeply placed, reënforcing the first with a second row. The sutures should be of silk. They are best inserted by means of an ordinary bowel needle. At times, especially when the ulcer is on the posterior surface, and when it is near the cardiac end, short round needles, straight from the eye-end almost to the point, and slightly curved near the point, are a great advantage, used with a needle-holder. With them it is possible to close a perforation at the cardiac end on the posterior surface easily and accurately. When there is much difficulty in closing the perforation securely (especially if the ulcer is large) an omental graft may prove serviceable.

Except when the perforation is on the posterior surface, or very near the cardiac end on the anterior surface, the irrigator should be run all the time while the perforation is being closed; the abdominal cavity will be almost perfectly cleansed by the time the suturing of the stomach is completed. It will still be necessary to make sure that the renal fossæ and the regions about the spleen and liver have been thoroughly cleansed. If it has been necessary to stop the irrigator, much more time will have to be expended in completely washing out the abdomen.

It is always necessary to drain, but in favorable cases drainage may be dispensed with quickly. A Keith's tube (glass) placed in the bottom of the pelvis, with a gauze wick through it, is sufficient for the lower abdomen; and a fairly large rubber tube passed down near to the perforation and packed around with gauze is the best method for draining the upper part. There may still be some risk of the lateral parts not being adequately drained, but it will rarely be necessary to adopt special drainage for them.

The dressings require changing in less than twenty-four hours, as there is a copious discharge of fluid from the abdomen. The amount of the discharge quickly lessens, remaining or soon becoming clear. In forty-eight hours the glass tube is removed from the lower wound, and the rubber tube from the upper. The gauze is still left in the upper wound, but is gradually withdrawn, a piece being cut off daily until the last of it is removed in about a week after the operation. The sutures are removed in about twelve days.

On the operating table an enema of a pint of saline solution with an ounce or even an ounce and a half of brandy is given; and saline enemata, with half an ounce or an ounce of brandy, are afterward given every four hours. The saline and brandy, at about the temperature of the body, are rapidly absorbed. These patients as a rule are terribly thirsty at first, and are constantly asking for drinks; but as the enemata are absorbed the thirst gradually wears off. After three or four days a little sterilized water may be given; then, gradually, sterilized milk, broth, etc., until in the second week semisolid farinaceous food may be safely given. In a little over a fortnight the patient may be allowed to sit up, and soon any food may be taken.

LACERATION OF THE CERVIX—REPAIRING.

Holding that there are two periods when the conditions for repair of the torn cervix are as wrong as they can be—just after delivery, and months or years later—DICKINSON *(New York Medical Journal and Philadelphia Medical Journal,*

March 26, 1904) calls attention to his practice.

Cervical injuries are sutured at the close of labor, when they seem to be the cause of postpartum hemorrhage. In the first week all cervical tears are sewn up, in conjunction with the perineal operation, when the pelvic floor injury is of such a character that a few days' delay is desirable.

Severe injuries to the cervix should be restored from the third to the tenth day after delivery. After the tenth day granulation tissue makes the original injury harder to outline accurately, and a curette is needed after the seventh day to clear the wound surfaces. Earlier a bit of gauze in a forceps or covering the "stick sponge" will clear the raw surface effectively. Nearly restored to its original shape, but of a size to handle easily through a vulva still well relaxed, the cervix is in the best condition possible. The needles slip through softened tissues, and approximation is readier and quicker than at any other period of the career of a tear. Chromicized catgut of a trustworthy make has given satisfaction at this stage, although it may not always do so if used just after labor, because soaking and softening can open even a triple tie. Plain gut is best not used here. As further involution will occur, the tied sutures should sink a little into the tissues.

Reviews.

MODERN OPHTHALMOLOGY. A Practical Treatise on the Anatomy, Physiology and Diseases of the Eye. By James Moores Ball, M.D., Professor of Ophthalmology in the St. Louis College of Physicians and Surgeons. With 417 Illustrations in the Text and Numerous Figures on 21 Colored Plates, nearly all Original.

This book has been written by five authors, the major portion of it by Dr. Ball, and the remainder by Dr. William Zentmayer, who contributes the chapter on "Anomalies of the Muscular Apparatus;" Dr. J. C. Knipe, who describes "The Ocular Symptoms of Nervous Diseases;" Dr. William T. Shoemaker, whose subject is "Diseases of the Orbit;" Dr. John T. Krall, who has prepared the chapter on "Errors of Refraction;" Dr. Harold G. Goldberg, who has written on "The Hygiene of the Eyes;" and Dr. W. E. Fischer, who records "The Methods Employed in the Microscopic Examination of the Eye."

Dr. Ball believes that embryology, anatomy, physiology, and diseases of the eye should be combined in one volume, and has therefore considered all of the topics named. Separate chapters on Anatomy, Physiology, and Embryology, necessarily much abridged, are not usually satisfactory in any ordinary textbook, although they belong to a system of diseases of the eye. However, Dr. Ball has done the work very well, and the essentials of the topics discussed are clearly stated.

He very modestly remarks in his preface that the illustrations may be worthy of mention. Certainly they are, not only of mention but of high praise. The colored pictures illustrating external diseases and ophthalmoscopic appearances have been reproduced from a series of water-colors made by Miss Margaretta Washington. Author, artist, and publisher are heartily to be congratulated on the excellence of the work. Throughout the entire book one is struck with the conscientious care with which the authors have prepared their subject-matter, and the thoroughness with which they have examined and utilized the literature of ophthalmology.

The chapters written by Dr. William Zentmayer and Dr. William T. Shoemaker are particularly worthy of praise. In spite of the fact that they of necessity have been limited as to space, they have covered all of the essentials of the subjects assigned to them in a clear, scholarly, and satisfactory manner.

Dr. Knipe has not been so fortunate, it would seem, in describing the ocular symptoms of nervous diseases, but it is extremely difficult for any one to make a satisfactory exposition of this subject, which could easily fill an entire book, on fifteen pages. Some of his statements require modification. For example, he remarks that "in all cases of hysteric amaurosis the pupil reacts normally to light, and this serves to differentiate it from other forms of blindness." In point of fact, it is well known that complete immobility of the pupil to light re-

action may be part of the symptomatology of a hysteric attack and of hysteric blindness, and this statement, which so often finds its way into text-books, is entirely inaccurate. So, too, it surely is not right to say that general paresis is rarely accompanied by optic nerve atrophy. Even a conservative estimate shows the presence of well marked atrophy in fully eight per cent of patients afflicted with general paralysis of the insane, and in a much higher percentage decoloration of the disk and the signs of beginning gray degeneration are evident. Nevertheless, considering the fact of the limited space granted this author, in many of his descriptions he has succeeded very well in condensing the main facts of medical ophthalmoscopy.

We submit that in a work as pretentious as this the author of the chapter on "Errors of Refraction" has not been given a space commensurate with the importance of his subject. Surely in a work of 790 pages more than 46 pages should have been given to the errors of refraction, which every day assume more importance. So far as the reviewer has been able to see, Dr. Krall's recommendations are usually sound and his descriptions accurate, although many would disagree with him in his method of prescribing glasses—that is to say, his method of arriving at the portion of the total spherical correction which should be ordered. In point of fact, in all modern text-books there ought to be much more detailed description not only of the methods of arriving at a correct estimate of refractive error, but of the practical methods of prescribing glasses, and while it is true, as Dr. Krall very properly points out, that each case must be studied by itself, and that no hard and fast rule can be given, after a rule is stated there should be no difficulty in describing the cases that are constantly met with in office practice which form exceptions to the rule. We believe that many of the rare forms of external ocular disease and uncommon fundus lesions might be relegated to a subordinate position, and the space thus gained devoted to what may be called the clinical side of refractive work. Seventy-five per cent of the patients who come for relief of eye troubles require some form of optical therapeutics, in the widest acceptation of this term, to bring them desired relief. If this statement be correct, then it is surely right to maintain that not only in this text-book, but in all others more space should be given to the practical side of refractive work and to the enormous influence which eye-strain wields in modern life.

In general terms clinical ophthalmology —that is to say, diseases of the eye—is well described, and the recommendations are sound. Dr. Joseph Grindon and Dr. A. H. Ohmann-Dumesnil have assisted Dr. Ball in the preparation of the dermatological diseases of the eyelids, and there is a much more elaborate description in this respect than is commonly found in text-books.

Naturally there is some overlapping where so many authors have contributed to one book—for example, in the "Physiology of Vision and the Anomalies of the Ocular Muscles"—or, to speak more accurately, some repetition of statement; but as the subjects are important there can be no harm in this except that it increases the bulkiness of the book. We congratulate Dr. Ball and his collaborators on the completion of their labors and the excellence of the results achieved. We predict for the book a hearty reception, which it deserves.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Lectures and Original Articles. Edited by A. O. J. Kelly, A.M., M.D. Volume II, Fourteenth Series, 1904.
Philadelphia: The J. B. Lippincott Co., 1904.

The first 128 pages of the present volume are devoted to the consideration of diseases of warm climates. Amongst these articles we note particularly an article by Dr. Kanellis, of Athens, Greece, upon the Etiology of Bilious Hemoglobinuric Fever, and another one by Dr. William Krauss, of Memphis, upon Malarial Hemoglobinuria. These subjects, with that of Uncinariasis by Dr. Allen J. Smith, will probably interest our readers who live in the South more than any other articles in the volume. In the article dealing with treatment perhaps the most interesting is that upon valvular cardiac disease with broken compensation, while in surgery the non-operative treatment of ankylosed joints by Dr. Rugh will per-

haps prove most interesting to the general surgeon. Another article of general interest is that upon Intestinal Obstruction in Children, by Dr. C. G. Cumston.

The volume maintains the high character of its predecessors.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. By Various Writers. Edited by Albert H. Buck, M.D. Volume VIII. Copiously Illustrated.
New York: William Wood & Co., 1904.

These volumes, which we have taken pleasure in noticing from time to time as they have appeared, have now come to a conclusion with the eighth, which goes to the end of the alphabet. We wish, first of all, to congratulate Dr. Buck upon the completion of a task of such magnitude that no one, save one who has attempted something of the same kind, can appreciate. It is sometimes easy to get together in one volume a number of eminent contributors who, by reason of their prominence in their individual lines, are capable of producing a work of unusual merit. When more than one volume is to appear the difficulty is greatly increased, and when no less than eight volumes, containing approximately eight hundred pages each, are prepared, the labor is tremendous. Those of our readers who are not acquainted with this work should speedily put themselves in the way of becoming thoroughly familiar with its value, for it can be truly said that the doctor who has never heard of Buck's Reference Handbook of the Medical Sciences cannot consider himself thoroughly in touch with the literature of his profession. Amongst the articles which strike us as being particularly valuable in the present volume is that upon "Peritonitis," which is contributed by Dr. Warthin, which covers many pages.

More than half of the present volume is devoted to an appendix, in which a large number of subjects not included in the preceding volumes are formally considered, beginning with Alaska and ending with a chapter upon Yellow Fever, although the first half of the volume contains another article upon this disease. The first is by Dr. Finlay, and the second by Dr. Juan Guiteras.

The illustrations, as, for example, those showing the protozoön-like bodies found in scarlet fever, are exceedingly well executed. Many of our readers will be interested, too, in the article which deals with "Physicians," and which considers almost everything of interest to the physician in his relation to the law and the relative number of physicians to the existing population. Illustrating this article is a map of the United States showing the ratio of physicians to the population per 10,000 inhabitants. It is interesting to note that in Ohio, Indiana, Iowa, and California the proportion is highest, more than 20 per 10,000; that in Oklahoma and the Indian Territory it is apparently less than 5 per 10,000. New York and Pennsylvania give a proportion of about 13 per 10,000.

We cordially congratulate the editor, Dr. Buck, and the publishers, Messrs. William Wood & Co., on the completion of this most excellent encyclopedia of medical information.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

Amongst the scientific lectures of the year, the Goulstonian Lectures, which are delivered annually before the Royal College of Physicians in London, are often of special interest inasmuch as they commonly deal with aspects of disease which, if not altogether new, at any rate are not yet hackneyed. By the terms of its foundation, nearly three hundred years old, this Lectureship must be conferred on one of the four youngest of the Fellows, and in the present year it fell to Dr. R. Hutchison, whose lectures on disorders of the blood and blood-forming organs in early life were a most admirable contribution to this difficult subject. I can only mention here some of the more practical points to which he referred. In infancy there is a comparative poverty of hemoglobin, so that the blood approximates to the condition of chlorosis; this explains in part why anemia so easily occurs at this period of life—the physiological state of the blood borders on the pathological, and is easily converted into it. Again, the red marrow of the bones,

in which formation of red cells takes place, occupies the whole shaft of the long bones in infancy, while in adults it occupies only a portion of the shaft; therefore when any special call for greater production of red cells occurs the red marrow can and does extend further along the shaft of the bone in the adult—*i.e.*, the area of production is extended to meet the special requirement—whereas in an infant any such extension is impossible, for the area of production is already as large in extent as it can be made; hence in infancy hemorrhage is stood badly, and anemia occurs on very slight provocation.

An interesting suggestion was conveyed by the term "congenital abnormalities of the blood." Is it possible that in some cases—for instance, in those curious cases of infantilism where an infantile state of body persists long after the characteristics of a later age should have appeared—the blood retains the peculiar characters which it has in infancy? Is there such a condition as congenital anemia? What is the significance of those cases in which a child is cyanosed from birth and the blood shows excess of red corpuscles and of hemoglobin?

Among abnormal conditions of the blood the lecturer classed infantile scurvy; and apropos of this disease he recorded some important observations on treatment. It has long been known that the juice of fresh fruits acts as a powerful antiscorbutic, but it is still uncertain what particular constituent of the juice has this remedial effect. By experiment it was found that the uncrystallizable part of the fruit juice is quite inert in infantile scurvy; it seems certain therefore that the crystalline part—that is, the salts—must be the curative agent, and accordingly potassium tartrate, potassium citrate, and potassium malate were tried in individual cases. These salts were found to have some power of restraining the disease, but not nearly so effectively as the natural juice.

Dr. Hutchison dealt also with the so-called "thymic asthma," the cases in which infants and sometimes older children have died suddenly, and hypertrophy of the thymus has been credited with the causation of this fatal asphyxia. He points out very wisely that different observers have estimated the normal weight of the thymus at such startlingly different figures that it would be very difficult to say when a thymus is to be considered hypertrophied. Perhaps it would have been well if he had included amongst the various theories dealing with the relation between the thymus and the sudden death in these cases the view, which might be supported quite as well as some others, that there is no relation at all.

The connection between the Egyptian god of medicine, I-em-hotep, and the treatment of heart disease is at first sight not very obvious; but the Harveian oration a few days ago solved the riddle by showing that the followers of that beneficent cult studied affections of the heart some thousands of years ago, although their treatment was not in all respects up to the latest improvements. It may be feared that, like the Athenians, we still spend a great part of our time in seeking after some new thing; but recently there seems to be a reaction in favor of seeking after things old, and Dr. Caton, who apparently is not unmindful of that mixture of *utile dulci* which Horace recommended, gave a most charming account of medicine in early Egypt before he passed on to consider the preventive treatment of valvular disease. Why, he asked, should the heart fail to recover completely, while the joints almost always do well, after acute rheumatism? If a knee or elbow with acute rheumatic inflammation were flexed and extended sixty or eighty times a minute, would it recover as it does? The heart fails to recover simply because absolute rest is impossible; but it is possible at least to insure a great diminution of its work, and in this, Dr. Caton considers, does our chance lie of preventing permanent damage to the heart. The patient should be kept lying down with the head at a low level; sleep should be secured; and all excitement prevented. Sodium or potassium iodide should be given not merely to promote absorption of the inflammatory products in the valve, but also to lower vascular tension and so relieve the heart of work. But no drug treatment is nearly so important as rest in the recumbent position, and this rest must last not one week or two, but many; moreover, if it is to do any good rest must be enforced while the endocarditis is still in it

early active stage, not later, when the damage in the valves is unalterable. Dr. Caton said he had seldom found difficulty in persuading patients to submit to this prolonged rest when it was pointed out to them that they might hope for complete recovery if only they would carry out this advice. His results with such treatment had been striking; the number of cases of permanent heart disease after endocarditis had been greatly reduced; and for his own part he would consider it actually "immoral" to omit such measures in any case of recent endocarditis.

A meeting in connection with some local friendly societies, which act as provident clubs to which the artisan class subscribe for assistance in time of sickness, was the occasion of some interesting remarks by Dr. Newsholine, of Brighton, on the effects of alcoholic liquor drinking upon the funds of such societies. There are two prominent factors in the mortality amongst males between the ages of twenty-five and sixty-five: The one is tuberculosis; 29 per cent of the deaths at this age are due to phthisis, and as this entails usually a prolonged illness it makes a correspondingly large demand upon the resources of the club or society; it was shown by statistics that 12 per cent of the funds of these societies is expended upon cases of phthisis. The other is alcoholism, which, although it might seem to be a comparatively insignificant factor at first sight, is really a most important cause of sickness and death, and so constitutes a drain upon the income of these provident clubs. According to death certificates only 7 per cent of the deaths among males at this age are due to cirrhosis, but such an estimate does not, for obvious reasons, represent the true mortality from the drinking of alcohol, which may cause death directly or indirectly in many other ways which are not recorded as the result of alcoholism. Dr. Newsholine stated that according to the statistics of one insurance society, for every 100 males who took alcoholic liquors and died between the ages of twenty-five and sixty, only 60 total abstainers died; he argued from this that even moderate drinking of alcohol diminishes a man's chance of long life. He thought that 30 per cent of the total mortality amongst males at the ages mentioned might safely be attributed to alcohol, and he pointed out that the man who frequents the bars of public-houses exposes himself not only to the risks of alcohol, but also to the risk of tubercular infection, which is necessarily great where so much spitting occurs.

Infant mortality, in spite of many efforts to reduce it, remains appallingly high in London, and there can be no doubt that Sir James Crichton-Browne, addressing the Sanitary Inspectors' Association, was perfectly correct in attributing this mortality very largely to the use of proprietary foods. He said that 75 per cent of the infants who die within the first twelve months have been fed artificially. This waste of life has been attributed to defective sanitary conditions, but these, he said, have now been shown to have very little influence upon infant mortality. It is the use of the various proprietary foods which is responsible for most of the mischief. People like to use foods which simply require the addition of a little water to a powder, it is so simple and saves so much trouble; but if they realized that the result is anemia, rickets, scurvy, or loss of power of resistance to disease, they would be less ready to use these dangerous substitutes for fresh milk.

The Royal Society held its annual conversazione a few days ago. As usual there were wonderful curiosities from all departments of scientific research. I know of nothing more calculated to humble the pride of intellect than a visit to one of these displays at Burlington House, where the most learned scientist as he passes from the few exhibits which deal with his own small corner of the great world of science must needs be a mere ignoramus in regard to almost every other discovery represented there. Dr. A. E. Wright has devised a means for measuring the resistance of an organism to tubercle bacilli; it depends on the number of bacilli which are found to be ingested by the phagocytes; one of these was shown having actually enclosed several bacilli. The "kammatograph" is a curious modification of the kinematograph, for reproducing in photograph the slow movements of plants; for example, the

opening of buds which might occupy several days was reproduced in motion lasting only a few seconds.

I hope in my next letter to give some account of two congresses which have just taken place—one in London and one in Edinburgh—on the subject of "home relief," a broad term meant to include all that concerns the improvement of conditions of life amongst the sick poor at home. Many practical points of treatment were discussed, which I think may be of interest to all medical men.

As I am closing this letter I hear that amongst the honors conferred in commemoration of the King's birthday, knighthood has been given to Dr., now Sir, Thomas Stevenson, whose skill as a scientific analyst has played so famous a part in the detection of many of the most notorious criminals. The medical profession will appreciate this as a well merited honor.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

At a recent meeting of the Society of Surgery Dr. Mignon cited a most interesting observation of a soldier who had a fracture of the anterior portion of the base of the skull. The condition of the patient, which was at first satisfactory, grew steadily worse, and on the fourteenth day all the symptoms of meningitis were apparent. Dr. Mignon trephined both temporal fossæ, evacuated a large extradural effusion of blood on the right side, incised the dura mater, and drained with two tubes pushed underneath the brain. There was improvement after the first day, and on the twelfth day the patient was able to get up. He is now completely cured, but he has lost his sense of smell and the use of his right eye. A lumbar puncture had furnished some liquid, which showed a virulent culture of pneumococci.

The following case of sudden death after a hypodermic injection of glycerinated extract of adrenal capsules shows how careful one must be in using this new product. The patient was a woman forty-one years old, suffering from mucomembranous enteritis; she was weak and thin, with a dark skin, and had tachycardia. Dr. Dubois, who was treating the patient, injected every day two cubic centimeters of a glycerinated extract. Five injections were thus made, and seemed to have some influence on the condition of the patient. After waiting four days the physician made a sixth injection. The patient suddenly grew pale, made an effort to vomit, and then died.

It is well known how long and tedious the treatment of tinea capitis is usually, lasting sometimes as long as eighteen months. Dr. Sabourand, whose work on this subject as well as on other diseases of the scalp is so well known, has employed radiotherapy recently, and has had most excellent results from its use. He has been able to shorten the period of treatment to about three months. All the details of this treatment are set forth in the *Revue pratique des maladies cutanees, syphilitiques et vénériennes*, Paris, February 1, 1904.

Dr. Josué, physician of the Paris Hospitals, has recently published in the *Presse Médicale* an important article on the causes of atheroma. It is generally thought that this lesion is caused by arteriosclerosis of the small arteries which nourish the larger trunks, but histological researches carried out of late seem to disprove this. Dr. Josué has given injections of adrenalin to rabbits, and has found that repeated injections of this drug produce atheroma of the aorta. In three antopsies of patients who had atheroma it was found that the suprarenal capsules were enlarged and modified more or less in their structure. According to Dr. Josué, the real cause of atheroma may be after all a lesion of these organs.

The Pasteur Institute has just lost its director, Duclaux, who was the successor of Pasteur. Duclaux had first of all studied physics and chemistry. Later he was an opponent of Pasteur, but became converted to his ideas, and was an important writer in the Annals of the Pasteur Institute. His chief work was a four-volume treatise on microbiology. His death was caused by apoplexy, of which he had already had an attack two years ago.

A new drug called gomenol has been found most efficacious in the treatment of tuberculous cystitis. Professor Guyon has

recently declared in one of his clinical lessons that it produces better results than guaiacol. It should be used in the following manner: A one-in-ten solution of gomenol in oil is prepared. The bladder should first of all be washed out most carefully with boric acid solution, only a small amount being injected each time. The solution of gomenol is then injected, only 4 to 5 cubic centimeters being thrown up into the bladder twice a day. A still better preparation is a solution of oil and gomenol with two per cent of anesthesinè. Dr. Duhot has tried this and found it most efficacious.

Drs. Babinski and Boisseau have been treating two patients suffering from incontinence of urine by lumbar puncture, and have obtained a cure in each case. The first patient was a girl seventeen years old who had suffered from incontinence since the age of seven. A single puncture, by which 15 cubic centimeters was drawn off, removed all symptoms for eight days. She then suffered from incontinence twice in four days. A second puncture was then made. The fifth and seventh days there was some incontinence, but since then during the last two months there has been no recurrence of this disorder. The second patient is affected with syphilis and is suffering from organic spasmodic paraplegia, and has both urinary and fecal incontinence. A puncture with withdrawal of 15 cubic centimeters was made, and during the following eight days there was no incontinence. Two other cases are published by Dr. Babinski in which the good results are of too recent occurrence to justify pronouncing them absolute cures.

Dr. Lop, of Marseilles, has been employing chloride of ethyl in obstetrics with excellent results. During the last three years he has employed this drug in forty cases, and with unfailing success. He has been able to keep the patient under its influence sometimes as long as thirty minutes. The advantages offered by this method of producing narcosis are that it acts quickly, is quite inoffensive, and the patient wakes up very readily and can take food or drink very shortly after.

At a recent meeting of the Society of Dermatology Drs. Brocq, Bisserié, and Belot presented a series of patients who had been treated by *x*-rays for cancer of the face. These patients seemed to be quite cured, but Dr. Brocq remarked that all that could be said was that they seemed to be cured.

Drs. Pastean and Erybischoff have recently obtained an excellent result with Edebohls's operation in an acute case of Bright's disease seen in Dr. Guyon's service. The patient was a woman twenty-one years old, passing only 30 grammes of urine a day, and with double hematuria. The day the operation was done the vomiting ceased, the amount of urine excreted was 650 grammes, the general condition improved, and at present the patient is following no special regimen.

At a recent meeting of the Society of Obstetrics there was quite a long discussion on spasm of the pylorus in infants, and its present treatment in America by an operation. Drs. Mery and Guillemot related three cases of gastric intolerance in which the condition was due to spasm of the pylorus. By changing the food and giving the child a nurse, a good result was obtained. Dr. Lepage said he did not easily understand the opinion, which was of English and American origin, that such disorders of the digestion were due to a spasm of the pylorus, and he believes the repeated vomiting due to a bad condition of the milk. Drs. Bouffe and Pinard agreed with him. As for Dr. Lucas Championnière, he has often seen this spasm of the pylorus, which can be treated medically.

Dr. Delearde, of Lille, has been employing iodine in tuberculosis with fair results. He gives twice a day a large spoonful of the following preparation:

Tincture of iodine, 20 grammes;
Iodide of potassium, 2 grammes;
Glycerin, 40 grammes;
Syrup of bitter oranges, 50 grammes;
Water, q. s. ad 1000 grammes.

At a recent meeting of the Society of Surgery there was a long discussion on the danger of using camphorated naphthol in closed cavities. Dr. Guinard had cited at a previous meeting a case where death took place within three-quarters of an hour after the injection. The general consensus of opinion was that injections containing naphthol or iodoform are rather dangerous, and best avoided.

—THE—

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Original Communications.

FEEDING AND THE REST CURE IN TYPHOID FEVER.[1]

BY H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

In casting about for a subject which would be worthy of your attention this evening I confess that I have had some difficulty in deciding upon the theme which would prove most interesting. On the one hand I might bring before you certain questions which can only be decided by experimental research, and on the other it is possible to call your attention to equally timely, but more practical, subjects, which perhaps can be immediately utilized with advantage in practice. In addressing a body of medical men which possesses a wide clinical experience obtained first in the wards of the Presbyterian Hospital, and secondly in private practice, one cannot help feeling that he occupies the position of one who comes to obtain information rather than to give it. This is my attitude to-night, and if in the course of my remarks I touch upon subjects which seem to you hackneyed and already exhausted, you must recognize that they are themes which strike me as being of importance in my own experience in which perhaps you may be interested, and from which, in the discussion which I hope is to follow, I may perhaps gain much from the ideas which will be

[1]Read before the alumni of the Presbyterian Hospital, New York, May, 1904.

advanced by those who are first courteous enough to listen to me.

The first subject of which I wish to speak is that which deals with the question of the amount of food which should be given to a patient suffering from typhoid fever at the three stages of his disease. I think that every one is agreed that during the first week of his illness the diet should be liquid, since at this time all portions of the body are apparently less able to carry out their functions in a normal manner than they are in the second and third week of the disease. In cases which have considerable severity at onset it has always seemed to me that the digestive system was more disturbed in the first few days of the illness than later on. I am one of those who are firmly convinced that for many years we have been making a grave mistake in confining patients suffering from typhoid fever to a purely milk diet. This fact was borne in upon me forcibly about seven years ago when suffering from a prolonged attack of typhoid fever, which while it was severe in many respects, particularly in its complications, nevertheless left my brain during most, if not all, of the illness as capable of thought as it is at this moment. While I did not suffer from hunger in the sense of having an appetite, I was continually conscious of the fact that I was underfed, and I also knew that even when in health I could not take large quantities of milk with good results. When it came to the ingestion of considerable amounts of what might be called "hospital milk," I felt that I was receiving little more than water, and many hours of thought convinced me that on the one hand I was being attacked by the bacillus of Eberth, and that on the other my powers of vital resistance were being reduced by partial starvation.

Immediately after this I began giving those cases of typhoid fever which came under my care a varied diet of liquid and semi-solids, and since that time I have been greatly impressed at each term of hospital service by the advantages of this method of feeding. We must recollect that the average adult requires at least 2500 calories a day for normal existence, and as each quart of milk represents only about 500 to 600 calories, it is evident that for a patient to receive the total number of calories required for the maintenance of his body he must drink not less than 4½ quarts of milk a day. These facts further impress us with the utter inadequacy of the pure milk diet in this disease. Nor can we help appreciating the fact that we are overloading the organs of absorption and elimination with an excess of fluid, which certainly cannot be advantageous, although of course an excess of liquid in typhoid fever is preferable to a lack of it.

Again, I can see nothing in the clinical history or pathology of this disease which in any way justifies us in disordering metabolism by the institution of a rigid single diet; and I doubt if there is a man in my audience who can go to bed for a period of a month or six weeks and receive an absolute milk diet for that period of time without emerging very much the worse for wear.

It is my custom to give all patients after the first week of typhoid from one to two soft-boiled eggs a day in addition to the ordinary allowance of milk, and to vary their diet by the use of curds and whey, rice which has been boiled to a pulp, barley, wheat, and oatmeal gruel, and a cup of corn-starch with vanilla or some other flavoring substance of a like character. As a result I very rarely see the marked ataxia which is so common a symptom in convalescence from typhoid fever. The patient's nutrition is so well preserved that he is but little more emaciated than many cases of acute pneumonia at the time of recovery. Secondary complications like furuncles and bed-sores are unknown, for by the use of a plentiful supply of food the patient's vital resistance is maintained to such a degree that simultaneous collateral infections do not take place. The average case of convalescent typhoid fever is a fair mark for any infection because it is half-starved.

Recognizing that typhoid fever is characterized by a deficient secretion of digestive juices, all these patients receive hydrochloric acid and pepsin when proteids are administered, and taka-diastase and pancreatin when carbohydrates are used. I have never seen any bad symptoms arise as the result of this plan, and I am quite sure that I have seen an immense amount of good follow. I am not friendly to the use of beef tea, which I believe acts as a first-rate culture medium and frequently increases tympanites and diarrhea, the stools becoming fetid under its use.

For many years I have been much dissatisfied with the various theories which have been advanced to explain all the good effects which follow the use of cold bathing in typhoid fever. Most of my auditors will remember that but a few years ago the good effects of cold plunging were supposed to depend chiefly upon the fact that by this means we were able to bring the temperature approximately to normal. Increasing experience has, I think, taught us that the mere reduction of the temperature is the least of the results which hydrotherapy brings about. We must believe, on the other hand, that the readjustment of the circulation or the reëstablishment of the normal circulatory equilibrium is the chief benefit derived from this method of treatment, and there can be no doubt, I think, that the great increase in the elimination of toxic materials in the urine after the cold bath depends upon this readjustment of the circulation and the increased rapidity with which toxic blood is taken to the kidneys where it can be purified. A number of years ago there appeared in the *Australasian Medical Gazette* a paper by one of the staff of the Brisbane Hospital in which he reported a large series of cases of typhoid fever treated not by the use of the cold bath but by the employment of the tepid bath—a method instituted at first because the climate was so hot that ice was difficult to obtain, and subsequently adhered to because the results which were obtained fully equaled and indeed surpassed those which were reached by the use of ice-cold water. In these baths, as well as in the cold baths of Brand, we all know that active friction is a factor of very great importance, aiding the dissipation of body heat, and the longer I study this matter the more convinced I am that active friction in these cases is an exceedingly important part of the treatment, not only because it aids in the dissipation of heat and readjusts the circulation, but also because it exerts upon the patient beneficial effects which follow the use of massage when we employ the rest cure in the treatment of neurasthenia.

Some months ago, when Dr. Mitchell read his first account of the early cases in which he instituted the rest cure, he took pains to point out that he failed dismally in good results from rest in bed and forced feeding until in addition he provided passive exercise in the form of massage.

Personally I have come to consider that the value of the modern method of treating typhoid fever by cold depends in great part upon the fact that when cold bathing is used, the typhoid fever patient, who is undoubtedly suffering from a form of toxemic neurasthenia, receives throughout his illness a form of rest cure which maintains strength and puts him in first-rate physical condition in much the same manner as we endeavor to do for nervous wrecks in the social world. In other words, I do not believe that the free use of cold water in itself is the chief factor for good in these cases, but that if we amply feed and thoroughly rub our patients, a great portion of the good comes from these measures. In other words, I would advocate the employment of the Weir Mitchell rest cure in the treatment of typhoid fever.

I have also been very much impressed with two additional facts in this connection. One is that equally good results can be obtained in typhoid fever if patients are properly sponged with friction instead of being plunged. The same fall of temperature, the same reaction, the same reddening of the skin without cyanosis and congestion, can be produced by sponging with friction. I have never seen a temperature which could not be reduced by proper sponging, or ice-rubbing, even better than by the plunge bath. The sponging possesses the additional advantage that the patient does not have to be moved from his bed, that the great muscles of the back can receive even more attention than the anterior portion of the body, thereby increasing the dissipation of heat very greatly and preventing creasing of the skin and the formation of bed-sores. For several years I have never plunged my patients, and have always sponged them. My experience is, however, that every new nurse that sponges for me has to be instructed in the proper use of friction, and in any instance in which the temperature fails to fall under this method I feel confident that the fault is in the way the nurse does the sponging and not in the method itself.

The second point is that many patients suffering from typhoid fever are profoundly toxemic when their temperature is considerebly below 102½°, the point at

which the cold plunge is usually considered wise. Such patients are not given the cold plunge for the very good reason that if they receive it their temperatures may become subnormal, and they may collapse. The toxemia is permitted to persist, because the temperature has not risen high enough. Under these circumstances I believe that we should resort to tepid baths. I feel convinced that I have repeatedly saved life by the use of tepid or even hot water used with sponging and friction in toxemic cases which were certainly too feeble to bear cold. By the use of hot or tepid water with friction, circulatory equilibrium can be re-established, toxemia diminished, and even the temperature reduced to normal.

The next point I wish to consider is the question of the administration of alcohol to typhoid fever patients. Before I fed these cases so well I used very much more alcohol than I use at present, and I was firmly convinced of the fact that it did these patients good. I still use it quite largely, but, with good feeding, I can get along with much less than formerly, probably because the patient burns up food products in the body instead of burning up alcohol.

Closely connected with this question of the administration of alcohol is that which deals with the manner in which it can do good in typhoid fever. It has been shown so conclusively by a host of scientific investigators that alcohol is not a true stimulant in the sense in which we employ that term in connection with drugs which increase the functional activity of various organs that we cannot ignore the fact that in the past our views concerning its mode of action were erroneous. On the other hand, the experience of a vast number of practitioners has been almost without exception in favor of the proper employment of this drug in typhoid fever, and surgeons innumerable are prepared to assert that iron, alcohol, and quinine are the best means of combating various forms of bacteremia, admitting, it may be, that they know not how they do good, but asserting vehemently that they are invaluable.

At the present time it would seem likely that we are standing on the threshold of therapeutic discoveries which make all previous ones seem insignificant. Ehrlich's theories in regard to antitoxic bodies, receptors, and haptophores have thrown a flood of light upon many physiological and pathological processes, and I believe are destined to show that many of our therapeutic measures which we have thought rested upon a scientific basis have been purely empirical, in the sense that we have been entirely ignorant of the manner in which their effects have been produced. In other words, as an illustration of this, in the past we have called alcohol a stimulant, thinking only of the circulation, the kidneys, and respiration. It is quite possible that it does not act as a stimulant upon these functions, but upon other functions which are of equal importance in the human body, and are connected with immunity and the ability of our bodies to resist infection. It would seem probable that certain drugs, such as those I have named, for example, may exert an influence upon the body by means of which the processes of artificial immunity are greatly increased. Recognizing the unsatisfactory state of our knowledge in regard to the employment of alcohol in various infections, it occurred to me that this drug might perhaps do good in typhoid and other fevers of an asthenic type associated with bacteremia by increasing the bacteriolytic power of the blood, and I therefore instituted a series of experiments which I reported at the meeting of the Association of American Physicians in Washington in May, 1903, and published in the THERAPEUTIC GAZETTE for May, 1903.

SOME OBSERVATIONS ANENT MALARIA, WITH SPECIAL REFERENCE TO THE DISEASE AS COMPLICATING ENTERIC FEVER.[1]

BY A. S. PENDLETON, M.D.,
Henderson, N. C.

The conclusions arrived at and set forth in this paper are the result of a careful revision and study of 943 cases of malaria of which complete notes were taken, and of conversation with medical men living in malarial districts who have a large experience with the disease.

Of the cases 12 were of the malignant type, with hemorrhages and subsequent jaundice, 97 estivo-autumnal remittent,

[1]Read before the North Carolina State Medical Society, May 25, 1904.

79 quotidian intermittent, and the remainder tertian intermittent. The apparent proportion would be misleading did I not add that as no record was kept of a great many cases of the tertian variety treated during the same period they are not included.

In the malignant cases the blood was found filled with molecular débris and disintegrating red blood cells, and contained numerous small organisms identical in appearance with those seen in the beginning of the estivo-autumnal type of the disease. The plasma was apparently slightly stained with hemoglobin. From the course taken by these cases, and according to the experience of men who have treated many similar ones, the danger in malignant malaria is practically never due to the loss of blood through hemorrhage, but to the toxins in the circulation causing an acute nephritis; death resulting from uremia. The fact that the physicians who obtain the best results in its treatment are those who pay most attention to the kidneys will strengthen the position here taken.

It is very unusual for the hemorrhage to threaten life. Almost invariably the amount of blood lost seems to bear no relation to the gravity of the attack. In one of the cases cited the hemorrhages were very profuse and continued throughout forty-eight hours, yet the patient recovered, though at times no radial pulse could be detected.

In another, the hemorrhages were limited to two, and they were both slight; yet on the third day there was complete suppression, the patient dying on the eighth from uremia, though all known means, including hypodermoclysis, were tried to get the kidneys to act.

The use of the decinormal salt solution by transfusion, hypodermoclysis, or enteroclysis has undoubtedly materially lowered the mortality, and should be used in every case, regardless of the amount of hemorrhage; its beneficent action being derived much more largely from its direct diuretic effect and from diluting the toxins in the circulation, and so preventing nephritis, than from replacing blood lost. Nausea with frequent retching and vomiting is almost always present during the first twenty-four hours, and it is a waste of time and energy to give anything by the mouth except calomel, champagne, a little water or cracked ice. A hypodermic of morphine is usually necessary for pain and nausea.

Quinine should be administered hypodermically, and as twenty to thirty grains per diem have been proven sufficient to destroy the organisms, the dose should be limited to that amount. The reason the immense doses of the drug which have been given have done no harm, or have apparently done good, is because only a very small proportion was given hypodermically, and that given *per os* was either vomited or swept through the alimentary tract by the accompanying calomel before there was time for absorption. Diuretics *per os* should be begun as soon as possible.

Nothing of interest was noticed in connection with the tertian and estivo-autumnal types except that the salicylate of quinine was better borne by the stomach than any other salt, that it controlled the headache and backache usually without the need for coal-tar products or morphine, and that a smaller dose of it was required than of the sulphate to destroy the parasites, fifteen to twenty grains per diem generally being sufficient.

As to the etiology of the disease, we are all agreed that it is caused by the presence in the blood of the malarial parasite, variously known as hemosporidia of malaria, plasmodium malariæ, etc., which have been very fully described by many of the authorities, but especially by Thayer, of Baltimore. Manson holds to the belief that the only course of infection is through the bite of the Anopheles mosquitoes, and his experiments would lead us to believe that his conclusion is the correct one; but we of the South, and especially those of us who live in the eastern section of North Carolina, have learned through experience that certain conditions certainly predispose to the extent of determining individual attacks, whether or not they are responsible for the infection. For instance, those who habitually drink impure water are peculiarly liable to the disease, while those who are careful to take nothing but pure water are notoriously free from attacks. The substitution of deep-drilled wells for shallow, open ones has greatly lessened malaria in certain districts. Those who are exposed to the heat of the noonday sun are more often attacked

than those who are not. In intensely malarial districts a paroxysm will often make its appearance after surgical operation or after labor, and one too that is shown to be malarial and not septic in origin by examination of the blood and the administration of quinine. These facts indicate the possibility of other sources of infection. On the other hand, the writer has found the organisms in the blood, though there were no symptoms indicating their presence, and the conditions just enumerated may act by simply lowering the vitality and resistive power of the individual to the extent of causing an attack when otherwise the parasites would have been destroyed without producing symptoms. That exposure to night air predisposes to the condition is explained by the fact that the Anopheles is essentially a night-hawk.

The number of cases is always increased in localities where excavations are being made, where the ditching and draining of swampy lands is being done, but there is less than usual during the summer following such drainage. Malaria is more prevalent in dry than in wet summers; this may be because stagnant water is required for the growth and development of the larvæ of the Anopheles, and oft-repeated rains destroy them.

Let us now consider malaria as a complication of typhoid. All authorities I believe admit the possibility of such a mixed infection, but declare it to be a very rare condition.

During the time when these observations were made the writer treated twenty-seven cases, which presented the following evidence of being caused by a mixed infection:

1. The plasmodium in one or another of its forms was present in the blood of all, so there was no doubt about the malaria.
2. Widal test positive in all.
3. The diazo-reaction was present in all.
4. Epistaxis in seventeen.
5. Rose-rash in twenty-one.
6. Intestinal hemorrhage in five.
7. Perforation of bowel with death, followed by a confirmatory post-mortem, in one.

As you will see I have taken only those cases in which the proof was practically indisputable, and when I add that the total number of typhoid fever cases, including these, treated during this time was thirty-nine, you will perhaps begin to believe with me that in markedly malarial sections the mixed infection is much more common than we have been taught to believe.

In these cases during the first few days of the attack the malarial symptoms were of such prominence as to mask those of the enteric; but after the first week, when sufficient quinine had been given, the clinical course was typically that of typhoid fever in character.

The usual history was as follows:

No prodromes, the disease being ushered in with a chill, accompanied by headache, backache, and a maximum temperature of from 104° to 105° F., sometimes reaching 106° F. The bowels were generally constipated, and the tongue pale, flabby, and heavily coated.

The urine usually showed a trace of albumin, and in some cases, particularly those in which the temperature was excessively high, an occasional blood cast was found. Examination of the blood on the afternoon of the second day revealed numerous malarial parasites.

From three to six hours after the chill the fever would begin to subside and the patient to sweat profusely. The temperature would almost or quite reach the normal by the morning of the second day, and rise again to about 100½° F. in the evening.

In about fifty per cent of cases observed there was a second chill with fever and sweat on the third day, regardless of the treatment instituted, but when fifteen to twenty grains of quinine was administered daily the third paroxysm never appeared. Discontinuing the quinine invariably meant a recurrence of the chill, and usually on the eighth day. Fifteen to twenty grains was found to be sufficient to control the malarial element, and seemed to have no deleterious effect on the typhoid.

The course of the disease after the third or fourth day was generally typically typhoid when the quinine was continuously administered.

In five cases there were one or more hemorrhages, and in one perforation followed by death of the patient. Another was complicated by bronchopneumonia in the third week, and the patient suc-

cumbed on the twenty-sixth day—making two deaths and twenty-five recoveries. It would seem therefore that the mortality is no greater than in uncomplicated typhoid fever.

The reappearance of the malaria when the quinine was discontinued was probably due to reinfection, as these patients were not protected.

VERTIGO.[1]

By Charles J. Aldrich, M.D., Cleveland, Ohio,
Professor of Mental and Nervous Diseases, College of Physicians and Surgeons, Cleveland; Neurologist to the Cleveland General Hospital and Dispensary; Neurologist to the City Hospital.

Vertigo is not a disease, it is only a symptom. But it is a symptom-expression of such widely varying pathological conditions as to be worthy of much consideration and thought.

Vertigo is derived from *vertere,* "to turn," and is a term commonly applied to a disturbance of equilibrium, that complex correlated result of several senses, and which we also call station. To this definition we may add the statement that equilibrium or station is the recognition and maintenance of the normal spatial relations of the body with the objects of its environment.

Authorities have long held that vertigo was subjective when the complainant experienced the sensation of reeling or spinning about when in fact his equilibrium was not actually disturbed.

Notwithstanding this definition of vertigo, which is given by all of the writers, it is self-evident that subjective vertigo does not, cannot exist. A man either has vertigo or has it not. If a vertigo is a disturbance of his equilibrium, it is manifestly impossible for him to have a vertigo without disturbance of equilibrium.

The phenomenon which has heretofore been described as subjective vertigo is a genuine delusion, and the patient is usually able to recognize its falsity. In this so-called subjective, or more properly delusional, form it appears to the patient that it is his corporal self that is moving; yet he is able to recognize the fact that the objects of his environment are stationary; and while these patients complain of a sense of giddiness, of reeling, and of whirling, they do neither, nor do they ever fall.

A logical consideration of these facts leads us to the inevitable conclusion that the so-called subjective vertigo is a delusion, possessing in truth all of the dignity of a real delusion. It is not a vertigo but a sense deception—a psychic imposture, and wholly due to a disordered consciousness.

In true vertigo, that which authors have heretofore denominated as objective, the subject actually staggers, reels, sometimes spins, and often falls. In this form of vertigo his spatial relations are really disturbed, and visible objects pass him in rapid procession, or whirl about him, or over, or under him—oftentimes in a fixed direction—and he staggers or falls in proportion to his inability to adapt himself to that which appears as rapid changes in his spatial relations.

As foreshadowed in the foregoing remarks, I believe that the division which has been formerly observed in speaking of vertigo as subjective and objective is both misleading and confusing, and not founded upon a true conception of the differences existing between the condition which is the result of the inharmonious action of the various senses, calculated to aid us in establishing and in maintaining our equipoise and our normal spatial relations with the objects of our environment, and a psychic vertigo which is evidently a subjective disturbance of consciousness, a psychical occurrence, in which a feeling or sensation of instability is foisted upon perception without such condition existing in fact. Of course there are many degrees of objective vertigo, some of which are so slight as to allow the subject to successfully overcome them and appear to possess a good station. To differentiate them from the delusion types is not difficult if the conditions of the various tests are well planned by the examiner.

Our knowledge of vertigoes allows us to resolve them into the following ten more or less well recognized clinical forms:

1. As a symptom of a disease or disturbance of the semicircular canals, the nerves of Cyon, or of the cerebellum; in

[1] An address given to the Ashtabula County Medical Society, at Ashtabula, Ohio, December, 1903.

short, a disturbance of the apparatus of equilibrium, whether destructive, irritative or functional—Ménière's disease.

2. As a manifestation of various diseases of the external and middle ear; tympanic irritation, polypi, hardened wax, etc.; changes in atmospheric pressure as experienced in ballooning or working under compressed air; affections of the Eustachian tube with consequent congestion and lack of ventilation of the tympanic cavity—tympanic or auditory vertigo.

3. As an indication of organic brain disease, such as severe concussion, abscess, brain tumor, brain syphilis, meningitis, multiple sclerosis, and general paralysis—irritative vertigo.

4. As an evidence of an incoördination of sensory impressions received by the brain through the organs of vision—ocular vertigo.

5. As a manifestation of disordered circulation of the brain, whether due to a functional interference with the normal supply of blood to its tissues, grave alterations in the pressure of the blood-stream itself, or to an actual organic affection of the vessel walls—vascular vertigo.

6. As a symptom of neurasthenia or other neuropsychosis—psychic vertigo.

7. As an accompaniment or an equivalent of epilepsy or migraine—equivalential vertigo.

8. As a result of tissue starvation, as in chlorosis and anemia, or following severe hemorrhage, shock, or syncope—vertigo of cerebral anemia.

9. The effect of intoxication and infections, lithemia, drugs, poisons, autointoxication, Gerlier's disease—toxic vertigo.

10. The outcome of reflex excitations of the mechanism of equilibrium (stomachic vertigo, laryngeal vertigo, uterine vertigo, etc.)—reflex vertigo.

It is not assumed that this classification is original, or perfect, or complete, but as a working formula it will be found to possess value, especially in aiding one to a diagnosis, without which one's treatment will be unscientific and likely ineffectual.

It is far from my intention to attempt a detailed discussion of the multitude of symptomatic vertigoes. An effort will be made, however, to touch upon each group in proportion to its relative importance and the actual experience which I have had with its numerous forms.

Labyrinthine Vertigo.—The vertigoes arising from various affections of the labyrinth possess great interest, and it is thought that some brief notes of cases observed will be useful to introduce us to a study of this well defined clinical group.

The following case was seen at the instance of Dr. W. G. Crile at the Cleveland General Hospital:

Mr. C., captain of a fishing tug, suffered a severe lacerated wound of the neck which became infected. He finally recovered and returned to work, but much weakened and far below his normal standard of rugged health. On the first few days of his return to his tug, and while directing some work, he was seen to suddenly spring into the air and spin about, from left to right, and fall to the deck in a partially unconscious condition, from which he soon passed into an acute maniacal condition. He fought and raved, and cursed and swore, requiring three or four strong men to restrain him. Among his ravings were several profane references to fearful noises in the right ear, and it was noticed that he did not appear to hear well on that side.

He had been in this condition about ten days when I first visited him. After as careful an examination as could be made under the circumstances, and a thoughtful consideration of the history, the opinion was given that he had suffered an embolism of the auditory artery, or one of the cochlear branches, and that his insanity was a cerebral irritation due to the shock, from which he would shortly recover, but would, in all likelihood, be deaf in that ear. Three days later he suddenly recovered his mind, and although slightly giddy soon regained his spatial sense, but was and has remained deaf in the right ear.

The following case represents a different type, and was referred to me by Dr. F. J. Morton:

C. C., male, white, aged fifty-two; good family history. He had typhoid fever at fifteen, this being his only severe illness. About a year ago he began to have a buzzing in the left ear, which has continued. The hearing of that ear has gradually disappeared, until he is now unable to hear the ticking of a watch. The other ear appears perfectly normal.

Six months ago, without apparent cause or warning, he had a giddy attack in which objects about him seemed to "turn upside down," and he was thrown violently to the ground. He did not lose consciousness, but was very sick at the stomach and vomited. In all he has suffered three of these attacks: in the first two he was thrown to the ground; in the last he did not go down, but came very close to it. Dr. Morton observed him in one of these seizures, and states that he was extremely pale. Between these severe vertigoes he has not suffered from giddiness in the head, neither has he suffered from headache following these attacks. He often experiences, however, a flash of heat extending over the face and head. The patient is a healthy looking man, with a coated tongue, evidently of a bilious habit. The heart and arteries seem to be normal. He has a slight lateral nystagmus; the disks, media, and musculature are normal. His reflexes are quick, but not pathologically so. This is undoubtedly an irritative type of Ménière's disease that is comparatively common, and from which he may entirely recover. I neglected to state that an aurist had examined his ears, and beyond the apparent deafness no ear disease was discovered.

From my case-book it would be possible to multiply these cases to a useless and tiresome extent. The apoplectic type, however, is more rare than the ordinary form commonly called degenerative.

Tympanic Vertigo.—The second variety, the tympanic form of vertigo, is not at all uncommon. It is usually associated with considerable tinnitus and some deafness. Many cases appeared after the epidemic of influenza, from which we are unhappily not yet free. You will recall cases of vertigo from irritation of the drum membranes from pressure either from polypi or hardened cerumen. Also you will undoubtedly recall severe cases of vertigo resulting from syringing the ear; and it is a well recognized fact that many a strong swimmer, by a sudden dash of water against the drum, has experienced a vertigo which was sufficient to overpower him and bring about his death by drowning.

Closure of the Eustachian tube by swelling, new growth, or cicatrization will also produce vertigo.

Those working in the new water tunnel in Cleveland have afforded some marked examples of vertigo. I recall the case of one Mr. R., who worked for long hours under a pressure of about thirty-five pounds in addition to the one atmosphere. When he came out from under the pressure he experienced a sensation as though his "head had been blown off," and he was observed by his fellow workmen to leap into the air, spin about, and fall unconscious. He developed no paralysis, and the affection was undoubtedly a vertigo due to the sudden change of air-pressure operating upon his aural structures.

Irritative Vertigo.—As an indication of organic brain disease, vertigo is often a symptom of much value. It is usually evidence of a lesion situated in the medulla or cerebellum in such a position as to interfere with the normal operation of the centers of equilibrium which are believed to be therein located.

Diseases of the cerebellum are especially liable to produce vertigo, but to be able to actually locate the position of the cerebellar lesion from the character of vertigo is not always possible. If, however, deafness occurs on one side associated with vertigo it can be said to possess localizing value, since examination of a large number of cases reveals the fact that such lesions are located upon the side of the deafness.

The following case possesses an interest apart from the evident cerebellar lesion, in that it was evidently a syphilitic affection of that part of the brain, which is indeed rare:

D. D., male, white, aged forty-two, engineer by occupation, was referred to me by Dr. M. Rosenwasser in 1898. He suffered a syphilitic infection twenty years ago, but had active signs of specific disease five years ago. One year ago he was suddenly attacked with sick stomach, giddy head, and blindness, which lasted about four hours. This disappeared, and excepting a slight dizziness and some headache he remained perfectly well for three months, when he suffered a repetition of the attack that lasted twenty-four hours, and was again accompanied by vomiting, dizziness, and blindness. The vomiting, in fact, extended over twenty-

four hours, and the blindness and dizziness remained for two weeks, during which time he was unable to lift his head from the bed because of his loss of station. After he was out of bed his giddiness continued and gave him the sensation of falling backward. He also discovered that he was unable to look upward, or quickly over his left shoulder; if he did he would fall. He also noticed that after this attack his right arm and leg were weak, and that the right hand felt swollen and asleep, and trembled. His eyesight was poor, and he had some diplopia. Since his attack he has been sick at the stomach, constipated, dizzy, irritable, and drowsy much of the time. His reflexes are exaggerated, his station is fairly good, except when he attempts to look up or turns his head for a quick look over his left shoulder, when he staggers and falls unless he is supported. There are no eye changes nor other localizing symptoms. He has some ringing in his ears and is slightly deaf in both. Believing it to be a case of specific disease of the cerebellum he was put on active specific treatment, and in three months was perfectly recovered, and has remained well up to the present time.

About fifteen years ago, in company with the late Dr. W. J. Scott, I observed a case of brain syphilis in a stonecutter, thirty-one years of age, in which headache, vomiting, optic neuritis, and a peculiar vertigo were all of the symptoms. His vertigo was peculiar in that it was present only when he attempted to lie on the right side. As soon as this posture was assumed the room and contents whirled about him and he became nauseated. Although specifics were pushed he died. Dr. N. Stone Scott made a post-mortem examination and found a gummatous growth hanging from the right middle cerebellar peduncle impinging upon the right acoustic striæ. The growth was so attached that the right lateral position probably caused it to press against the acoustic centers.

General paralysis, that product of syphilization and civilization which has increased with gigantic strides, especially in metropolitan life, may first manifest itself by an unaccountable vertigo. As a rule, however, it occurs in the later stages of paresis, in which the vertigo becomes frequent and characteristic.

Vertigo often appears as a vertiginous equivalent of the apoplectic attacks of the later stages of paresis, and like them is indicative of the progressive degenerative changes in the cortex of the brain incident to that disease.

Vertigo constitutes one of the most valuable premonitory symptoms of apoplexy. Some years ago, becoming interested in this subject, I followed up a series of eighty cases of hemiplegia in which seventy per cent had experienced vertiginous attacks, varying from ten days to six months, and often two years before the apoplexy. Indeed, vertigo occurring in one with degenerated arteries, and past the middle term of life, should be regarded as a prodromal sign of apoplexy and proper prophylactic measures taken to prevent that fell occurrence.

Brain syphilis often first manifests itself by vertigo—indeed, it may be for a long time the only symptom of the affection—and thus afford a most valuable hint for the institution of therapeutic measures, which will be successful in preventing gross syphilitic brain lesions. The following case is a very good illustration of a specific vertigo of great severity:

Mr. C., aged forty-two, iron-molder by occupation; good family history, and excepting specific infection twelve years ago he has never been ill. Since his secondaries were very light he received but little treatment. On the 14th of March, 1901, he began to complain of dizziness and had a vomiting spell, which was followed by a severe headache. The vomiting and headache ceased after a night's rest, but the dizziness continued. Although he attempted to work it was with the greatest difficulty, and he only stopped when told to go home by his foreman, who feared that he might receive injury in the shop. At first I regarded the case as one of stomachic vertigo and treated him accordingly, but without result. Considerable attention was also paid to the possibility of lithemia being the cause. A low diet, alkalines, and cathartics had no effect. His dizziness continued, and was even present when he was in bed. He complained bitterly of a sensation of being "forced through the bed," and feeling as if he were being "turned heels over head," as he expressed it. "Everything in the room seems to be coming my way, or

passing over my head." He was often deathly sick at the stomach, but did not vomit. There were no signs of ear affection, and his eyes appeared to be normal except a slight haziness of the disks.

At this time on close questioning he revealed to me his specific infection. He was immediately put upon large doses of iodide of potassium and inunctions of mercury, but before I could observe the effect he passed out of my hands into the care of the late Dr. Tuckerman, who was rather inclined to believe that the vertigo was due to malaria, since the malaria parasite had been demonstrated in his blood. Antimalarial treatment, however, gave him no relief, and I was again called to the case. The ophthalmoscope now revealed the presence of a beginning choked disk, and he stated that his headache had become far more severe than before. In consultation with Dr. C. F. Hoover and Dr. Tuckerman, we concluded that it was indeed a case of brain syphilis, and the case was thereafter treated jointly by Dr. Tuckerman and myself. The result was a complete recovery in the space of six weeks, although his vertigo had existed for a period of almost three months. This case is an eloquent example of a peculiar manifestation of specific brain disease before other signs of gross lesion have appeared, such as severe headache, optic neuritis, and paralysis. It is also interesting to know that this man has remained in perfect health since that time.

Ocular Vertigo.—It is practically agreed among ophthalmologists that ocular vertigo nearly always occurs as a result of weakness or paralysis of the eye muscles. In many cases an actual diplopia can be demonstrated. In the marked cases of double vision vertigo is less liable to occur than in the very slight cases. The diagnosis of ocular vertigo is at times difficult. The closing of one eye and a continuance of the vertigo does not exclude the eyes as a cause. A few cases are said to be due to errors of refraction. I am positive, however, that I have not observed a single case of ocular vertigo that was due to eye-strain. By eye-strain I mean the overuse of an imperfect eye.

Vascular Vertigo.—Disturbance of the circulation of the brain is a well known cause of vertigo. A simple example is that of a slight vertigo which we nearly all of us have suffered when quickly rising from a stooping posture, or sudden standing from recumbency.

Vertigoes attendant upon marked cases of arterial sclerosis are not infrequently met with, and are usually easily recognized because of the thickened, tortuous temporals, thickened radials, serpentine brachials, hypertrophied heart, with apex beat to the left, and an accentuated aortic second sound. There are cases, however, in which a high blood-pressure can only be positively determined by the hemadynamometer.

The following case, besides possessing unique features, is a splendid illustration of the value of the hemadynamometer in making a differential diagnosis in certain forms of vertigo. The case was seen with Dr. Robert Pollock, January 27, 1904.

Mrs. B., a widow, aged fifty-four years, gives a good personal and family history, with the exception of four brothers who died of pulmonary tuberculosis. In the early part of last summer she had one or two attacks of giddiness after her evening meal. On the 26th of November, 1904, she was attacked with a "dizzy head." At that time her head ached and she was sick at the stomach. It appears that she had gone to bed feeling as well as usual, and awoke from an unpleasant dream, when the dizziness and sickness at the stomach were manifested. She stated that objects passed about her from right to left. She had had no aural symptoms, but a little buzzing in the left ear. She suffered several similar vertigoes; one was accompanied by both diarrhea and nausea. No other attacks were accompanied by nausea but the last mentioned and her first attack. In addition to her vertigoes she has attacks of weakness and a numb feeling extending over the body, but they are not accompanied by dizziness. Nothing wrong can be determined in connection with her eyes. Dilating the pupils with belladonna and wearing dark glasses have had no effect upon her dizziness. She was recently glassed by Dr. Lauder, who found nothing except the alterations common to advancing years. The character of her vertigo is peculiar. She says that she has a sense of "whirling wheels in the head." There are, however, no noises in the ears except the slight buzzing in the left. There is now present a con-

stant dizziness of the head. During all this time her head has seemed to be clear, but when she would "sit up things would begin to come up to me."

On my first visit I learned that she had been in bed three weeks, and then had a continual sensation of floating, as if in a boat. A peculiar feature is that when she now closes her eyes it appears to her as if her body soars into the air, and then begins to glide through the air feet foremost. This gliding movement seems very swift, so swift that she dreads to open her eyes, because as soon as she does so, and notes the fixed objects about her, it brings a stop with such suddenness that she is seriously disturbed. In addition to this she has experienced some real optical delusions. They began first almost like a dream, but they are now very often present when she is awake, but with the eyes closed. These delusions consist of the impression that, when she has soared upward and begun to glide as described, she passes along the sides of great cliffs and mountains, from which she can gaze down into unfathomable chasms. These visions take on the appearance of beautiful mountain landscapes, wonderfully colored and constantly changing. These delusional journeys would be very pleasant were it not for the sense of insecurity and fear of falling which continually possesses her.

The patient is a thin, pale woman of more than ordinary mental possessions. She does not present any stigmata of hysteria or insanity, but probably is neurasthenic. Her reflexes are quick and she has a slight lateral nystagmus. The pupils are at present dilated by atropine, hence reaction cannot be tested; Dr. Pollock states, however, that their reactions are normal. Her disks are normal. She has no signs of motor or sensory paralysis. The apex of the heart is slightly to the left, and the aortic second sound is accentuated. The radials are not more palpable than you would expect at her age. Hearing is acute, but there is a slight buzzing in the right ear, which contains a plug of dry wax, the removal of which discloses a drum normal like its fellow. Notwithstanding the presence of this wax in the ear I did not believe that her vertigo was due to its presence. Its removal apparently had no effect whatever in bettering her condition.

Three days later I returned with the hemadynamometer and was surprised to find that her blood-pressure was almost one hundred and eighty. Two days later Dr. Pollock began the administration of full doses of nitrite of sodium. After the first dose she expressed herself as being more relieved than she had been in many weeks. The nitrite was pushed and measurements taken from time to time, which showed a gradual reduction of her blood-pressure to one hundred and fifty, at which time she was so much better that she got up and was about the house, although suffering to some extent from giddiness. She has now practically lost all of her disagreeable symptoms and is able to go down town shopping.

This high blood-pressure is so distinctly in contrast with the low blood-pressure of the apoplectic forms of labyrinthine disease that I cannot forego mentioning, very briefly, the details of an extremely interesting case of apoplectic labyrinthine vertigo, and one which had such remarkable optical hallucinations that I intend in the future to report it in full.

Mrs. M., a widow, aged fifty years; good personal and family history. She was attacked in October, 1903, by a violent vertigo. She awakened about four o'clock in the morning with intense nausea. When she attempted to get up she was thrown violently to the floor. Her daughter put her in bed, but she remained very pale and unconscious for a period of fifteen minutes. She lay in bed a month practically helpless; was slightly stupid, and suffered from intense vertigo. Five days following her attack she complained of bells ringing and swords clashing in the left side of the head, and afterward a roaring in her left ear. One side of the body was not weaker than the other, and she suffered from no pain in the head or stiffness of the neck. She found that she was barely able to hear on the left side the loud ticking of a clock held to that ear. The temporal arteries were cordy and convoluted, her radials thick; and Dr. C. E. Ford, who kindly took the blood-pressure for me, agreed that she undoubtedly had an arterial sclerosis, and he estimated from the condition of her arteries alone (and he has had much experience in taking blood-pressures) that the pressure was high. Former observation had convinced me

that all these types of vertigoes have low blood-pressure, and from that knowledge I predicted a low pressure. We were both astonished to find her blood-pressure to be a trifle above ninety.

The vertigo of the aged, which as a rule is due to atheromatous degeneration of the arteries, is undoubtedly produced by the closing of the terminal arteries of the brain, with consequent shrinking of the brain volume through actual starvation of its elements. This may be a natural process incident to senility, or a direct result of atheromatous deposits in the vessels.

Psychic Vertigo.—Vertigo as a symptom of neurasthenia or hysteria possesses considerable interest, especially since it is a form of vertigo which has heretofore been described as subjective, and to which in my introduction I have strenuously objected. The symptom is usually excited by examination, and especially while the patient is talking about it. There is really no disturbance of the equilibrium, and the patient recognizes the falsity of the delusion, as the following case clearly shows:

Mrs. W., aged forty-eight, married but childless, has been a healthy woman but nervous. Her nervousness appeared after a miscarriage which she had at twenty-seven. She passed the change of life without event. She gives an exceptionally good family history, and organically is a healthy woman. She still suffers from "flushes," and states that she is very dizzy at times and can hardly walk, and that she sometimes has a tendency to fall forward, at other times backward. Her hearing is good. She experiences no abnormal sounds in the head or ears, and her eyesight is unimpaired. When asked to walk she immediately states, "Oh, I can walk all right." She can stand with the eyes closed and toes together, and I have no difficulty to prove to her that her vertigo is a delusion.

Another form of psychic vertigo is very well illustrated by the following brief abstract of a case history:

Mrs. P., aged twenty-seven, is naturally of a nervous constitution, and has been rendered excessively nervous by long application to hard clerical work. Among a large number of neurasthenic complaints, such as palpitation of the heart, fainting, etc., she complains of giddiness and staggering, and also a sensation of being so light that she is hardly conscious of stepping upon anything. At times she has a sensation of stepping upward as if going up-stairs. This seems to be due to a delusional sense impression, as she expresses it, "of things coming toward her." After treatment these sensations entirely disappeared. There never was, however, any actual staggering or unsteady gait; the whole was a delusion pure and simple.

Vertigo is rarely complained of in hysteria; it may be present in hysteric hemiplegics, but is nearly always delusional.

Vertigo as an aura or an after-effect of an epileptic seizure is not infrequent. The so-called epileptic vertigoes are epilepsies in fact, whose principal manifestation is a vertigo, in which case it should be looked upon not so much as an equivalent but as a real epilepsy. I have recently observed a marked vertiginous equivalent of epilepsy which promptly disappeared under "salt starvation" and full doses of sodium bromide.

Very frequently those who suffer from migraine suffer from vertiginous attacks. I myself am a sufferer from migraine, and not infrequently have a migrainous equivalent taking the form of a vertigo, causing me some very disagreeable feelings for a little time. Dana and others have related a number of severe attacks of vertigo, almost an apoplectic or Ménière's symptom, which were vertiginous equivalents of migraine.

Toxic Vertigo.—The vertigo due to the effects of drugs and poisons is well known. The most common one, of course, is the overfrequent drifting against the bar.

The peculiar type of vertigo which Gerlier described as paralyzing vertigo is probably of toxemic origin. But few cases have been observed in other parts of the world than in the south of France and Switzerland. The affection usually appears abruptly, and occasionally the phenomena occur in paroxysms. The patient suddenly becomes dizzy, falls, has pain in the neck, ptosis, and a paralytic condition of the muscles, with some lassitude, but never attended by loss of consciousness. The attack usually passes off in a few minutes. The initial seizure is commonly followed by others which ap-

pear at intervals varying from a few hours to days, weeks, or months. In the interval the patient's health is usually good. The difficulty is said to be sometimes epidemic, and has been especially noted in the Cantons of Geneva. It appears chiefly during the hot weather. Herdsmen and those in agricultural pursuits are most frequently affected. Its pathology is unknown.

The vertigo of lithemia is comparatively common, and a knowledge of it possesses great practical importance, since it usually excites much fright and alarm, and is commonly rapidly relieved by treatment directed toward the gouty state.

While looking up material for this rather rambling discussion of vertigo I was astonished at the number of this variety which crowd my memory and case-book. Some of them presented very violent symptoms, others were light in effect and evanescent in character. The following case will illustrate the intimate association existing between a lithemic vertigo and arterial sclerosis:

Mr. G., aged fifty-two, was referred to me by Dr. John Nuss in January, 1902, for a severe and persistent vertigo which had disabled him so completely as to prevent him from following his occupation as a molder. I learned that he had been continually treated for a period of over three months at the hands of various physicians and specialists. Examination revealed a healthy organism, which had not been weakened by any severe illness. His ears and eyes were normal, his appetite and digestion good, and bowels regular. His temporal arteries were thickened, the radial cordy, and the blood tension high. The apex of the heart was nearly an inch to the left of the mammillary line, and the aortic second sound was accentuated. The area of cardiac dulness to the right was more than normal, but to the left it was great enough to positively demonstrate a hypertrophy of the left ventricle. No valvular lesion could be demonstrated. Although he had experienced some stiffness and soreness of the joints he has never actually suffered from rheumatic attacks, and while there was some enlargement of the joints of the fingers, yet the presence of Heberden's nodes could not be asserted. His vertigo was practically continuous; he reeled and staggered like a drunken man, and while he had never fallen, yet at times he had great difficulty in keeping his feet. He was immediately put upon alkalies, saline cathartics, salicylate of soda, and frequent doses of nitroglycerin. In a week's time he returned to work, and when last heard of, over three months ago, he had suffered no recurrence.

The following case was puzzling for a time:

Mr. A., an Englishman, aged forty-seven, and a merchant by occupation, was referred to me by Dr. C. B. Parker. He gives an excellent family history and a personal history of rugged health. He uses tobacco moderately, but no alcohol. About three weeks previous to his visit to me, and while in apparent good health and at work, he had a feeling of dizziness, and objects seemed to take on motion and hurry by him at a tremendous rate. In order to keep his equipoise he was compelled to seize his counter. The attack passed off in the course of a few minutes, but has been recurring once or twice a day ever since. He has never fallen, but has been sick at the stomach each time. He had coryza, and his Eustachian tubes were stopped, but the drums were inflated by Dr. Phelps. He now appears to be completely recovered from his cold; his hearing is perfectly normal, he has no noises in the ears, and can easily inflate his drums by Valsalva's method. His eyes appear normal, his reflexes normal; his stomach seems to be in good condition; his vessels and heart are apparently perfectly normal. His pupils were widely dilated by atropine as a measure of treatment which I have found beneficial in vertigoes of doubtful origin, and for several days he appeared much better. A return of the vertigo without evidence of its being anything but a vertigo of intoxication, probably put in motion by his aural difficulty, caused me immediately to put him on an active antilithemic treatment, which secured absolute and permanent relief in the course of ten days. This was in the spring of 1898, and I have positive knowledge that he has been perfectly well since that time.

I recall a case of gouty vertigo, one of the very first that I had the fortune to treat. The patient was a large, powerful man who had the reputation among his neighbors of being lazy, and since he was

the best fisherman in the whole country I am positive that he may have been at least indolent. This man was attacked by vertigo, and had gone the rounds among the older physicians in the small place in which I was then practicing, with no result other than an increased reputation for laziness. The patient came to me, and from his rather intelligent description I was satisfied that he had been thoroughly treated for his stomach and almost everything else but lithemic vertigo. Knowing that he possessed a good appetite and indulged it freely, it occurred to me that possibly his difficulty was indeed gout. I put him on colchicum, citrate of lithia, and citrate of potassium diluted to a great extent; a limited diet was also prescribed, and a blue mass pill each second night followed by a black draught, which was a very common combination in the malarial districts of Indiana. This treatment cured his vertigo and gave me all the free advertising that only a lazy man, but a grateful one, can furnish an ambitious young doctor.

Reflex Vertigo.—It seems to be fairly well established that vertigo can occur from the effect of a reflex excitation of the central mechanism of equilibrium. Stomachic vertigo, laryngeal vertigo, uterine vertigo, and in fact a kind of reflex vertigo, has been described and ascribed to each organ of the body, and while I do not want to be understood as denying the existence of reflex vertigo, still I am skeptical in regard to many cases which have been reported. I have little doubt that a better explanation will be forthcoming, which will explain less theoretically the causes of many vertigoes now regarded as reflex.

Laryngeal vertigo probably occupies the most unassailable position of any of the reflex vertigoes, but when we recall the fact that irritation of the larynx has the most remarkable effect upon the blood-pressure as demonstrated by Crile, we bring to the explanation of laryngeal vertigo other causes outside of nerve reaction alone. Perhaps the same criticism can be made in reference to other reflex vertigoes. I do not feel like assigning the rather common vertigoes associated with stomach difficulties to autointoxication alone, since we are all aware that very severe vertigoes appear in certain people whenever they have a copious and free evacuation of the bowels. I have a young physician friend who suffers attacks of vertigo so severe, whenever he has a free movement of the bowels, that he almost falls from the closet seat. This is undoubtedly due to a rapid dilatation of the enormous vascular area within the abdomen, thereby draining from the brain such a large quantity of blood as to produce a vertigo purely from cerebral anemia. That many cases of stomachic vertigo, however, are true examples of autointoxication the experiences of Bouchard are certainly confirmative.

A form of vertigo which has been classed as a reflex vertigo is met with in some people who immediately become dizzy and stagger whenever they ascend to a great height; this, however, must not be confounded with a psychic vertigo in which the equilibrium is not actually disturbed, and which is often accompanied by fears on the part of the afflicted person that he will be compelled to throw himself from the dizzy height. This is a true degenerative phobia and very similar to the giddy, confused, and excited feeling which other degenerative types of the neuropsychoses manifest while in a crowd or a large, open place. These cases belong to the delusional type, but occasionally some of them manifest a true vertigo which may be the result of the powerful action of the delusion upon the centers of equilibrium.

ALVEOLAR PYORRHEA: ITS CAUSE, SEQUELA, AND CURE.[1]

By D. D. Smith, D.D.S., M.D.

In a beguiling pamphlet recently sent out to the dental profession by a manufacturing concern may be found a labored attempt to present alveolar pyorrhea as a constitutional disease due to a so-called uric acid diathesis. This pamphlet, although signed by an M.D., is evidently from the pen of one wholly without experience. Having a meteoric surface glow, the article is well framed to mystify and mislead respecting the true origin and not less the treatment of the

[1]Read before the Philadelphia County Medical Society, April 27, 1904.

number of such teeth) there is marked decrease in virulence of the infection as well as lessening in amount of the inflammatory exudates. Movement of the tooth is always outward away from the point of inflammation, as in effort to expel the irritant from the mouth. A tooth is never forced toward the center of the mouth, but always away from it, by the pyorrheatic inflammation. Rapid elongation, protrusion, or rotation of a tooth—movements at times attended with great force and considerable pain—indicate that the pericementum and cementum of the tooth are specially involved.

THE END TO WHICH REMEDIAL EFFORT SHOULD BE EFFECTED.

To characterize the destruction of tissue in pyorrhea as "molecular necrosis" may be well enough if it is understood that the inflammation arrests, partially or entirely, the nutrition of the parts. This is especially the case in the alveolus. It is the arrest of the nutrition process which is the real cause of the excretion of the tissues at the surface. There is no zone of dead tissue exfoliated as in true necrosis. It is rather a surface necrosis. That nutrition is partially if not entirely suspended in some cases is plainly evident from the stagnant circulation, the tumefaction, and purple color of the gums. The progress of the disease can only be arrested by the reinduction of normal nutrition. All remedial efforts should therefore be directed to the accomplishment of this end.

THE TEETH A CONVENIENCE RATHER THAN A NECESSITY IN MASTICATION.

When scientifically analyzed the office work of the human teeth in the digestive process will be found far less a necessity than has hitherto been supposed. In reality they play but an inconsequential part, and one easily substituted, in the preparation of foods for stomach digestion. This statement, contrary to ordinary conception and to all previous education, may seem at first an absurdity, but when seriously considered it will be made plain that while lack of mastication by the teeth interferes greatly with our convenience and pleasure, in no true sense can mastication be classed among the *necessities* to digestion. Foods are as perfectly prepared for the human stomach and all the digestive processes without the aid of teeth as with them. This fact stands out clear and most convincingly when we consider the sick, or when we look into the mouths of the old people of to-day. The sick and convalescent are nourished with prepared or predigested foods, and very many of the old people have edentulous mouths, *having regained general health after the loss of all teeth;* a goodly number are using artificial substitutes, which sustain about the same relation to good natural teeth that an artificial limb does to a natural one; very few have kept any considerable number of useful natural teeth to old age. In all these imperfect and inadequate conditions there is little recognition or complaint respecting inability of mastication. Good serviceable natural teeth coupled with vigorous general health in old age is an anomalous condition, while the reverse of this—few or no natural teeth and general good health—is the rule of life. Extensive grinding tooth surface is not a requisite for successful mastication, especially for cooked foods; the urgent demand should be rather for the free and comfortable use of the organs of the mouth, including such teeth as may be made aseptic and serviceable. The one requisite for avoidance of chronic digestive and other complaints is a mouth with teeth perpetually void of septic infection; hence the loss of septic teeth is by no means an unmixed evil.

PYORRHEA A CAUSE AND NOT A RESULT.

Alveolar pyorrhea, with its necessary history of antecedent, long-continued septic mouth conditions, is not a result, but the unimpeachable *cause* of many serious systemic diseases, the etiology of which is not only unknown but wholly unsuspected. Its diverse local manifestations, as the displacement of the teeth, the turning of them in their sockets, the formation of pus pockets beside the roots, the loosening of the teeth and their final exfoliation, are but minor sequelæ in comparison with the constitutional manifestations seen in the slow chronic pyemic effects.

If the effects of pyorrhea were confined to its ravages in the tissues of the mouth —the wasting of the alveolus and the exfoliation of teeth—it would be of in-

considerable importance; but the pernicious emanations from twenty or more square inches of infected tooth surface, carried in inhalation directly into the circulation through the lungs, and this augmented by the perpetual ingestion of masses of mucoid toxins—pus and other pyogenic products of the disorder—develop constitutional conditions of most serious import.

THE GRAVITY OF PYORRHEA NOT RECOGNIZED.

The gravity of states and conditions resulting from pyorrhea in the mouth has not yet been comprehended. If better understood, it would no longer be treated with comparative indifference as at present; on the contrary, it would awaken a feeling akin to alarm. As yet no comprehensive measures have been suggested by either medicine or dentistry to allay its symptoms or avert its consequences, and both professions stand in its presence to-day pitifully helpless.

HOW PYORRHEA DIFFERS FROM OTHER INFLAMMATIONS.

The inflammation of alveolar pyorrhea differs from inflammations and disease conditions in other parts, in that the septic products are of necessity discharged directly into the mouth, whence they inevitably pass into the digestive tract.

Clinical observation shows the confluence of alveolar pyorrhea with rheumatism or gout to be infrequent, and if associated at all it is as cause and effect—pyorrhea the cause and rheumatism or gout the effect; a condition exactly the reverse of the "gouty diathesis" theory.

The conjunction of pyorrhea and renal complications is far more common and serious. Uremia is a usual result of pyorrhea, due in greater part to the perpetual ingestion of pus and other effete inflammatory products, which are constantly being disengaged in the mouth, where they are mixed with foods and drinks, and thus inevitably washed into the stomach. And here again the relation is cause and effect—pyorrhea the cause, renal complications, more commonly diabetes, the result. This has been repeatedly and indisputably proven through cure of the pyorrhea curing the diabetic condition.

WHERE CAUSE FIRST APPEARS.

This infection appeals for recognition first of all in septic states of the breath. Poisonous deposits upon the teeth due to toxicity of the breath are a constant menace, and principal factors in the incitement of the disorder. Although in the aggregate such deposits may be meager in quantity, they are exceedingly virulent and violently irritative to surrounding tissues; they are rapidly augmented by alluvium from vitiated salivary and mucous secretions, and from septic excretions, and not less by deleterious products from the necrotic condition of the alveolus and the perpetually irritated and inflamed gum margins at the necks of the teeth.

(Examples of breath infection appear in the surface discoloration of gold plates, gold and amalgam fillings, as well as in accumulations on the teeth.)

A DISCOVERY DEMONSTRATED.

It is matter for earnest felicitation that offensive breaths, a result generally of neglected mouths, filthy conditions of the teeth, and repulsive mucoid oral fluids, are wholly preventable and surely curable when they exist.

TREATMENT.

The cause of pyorrhea being a local irritant, whether that irritant be the presence of the tooth itself or an accumulated infection on the tooth, the beginning of treatment should always be directed to the removal of the cause. Not all teeth that have been loosened through pyorrheatic infection can be redeemed and made firm, comfortable, and useful, for when the disease has progressed to necrosis which involves the alveolus and pericementum, the entire circumference of the tooth and the osseous structures about the root or roots having become much absorbed—alveolar tissue once absorbed is never reproduced—immediate extraction is the proper treatment; or, if through development of a pericemental abscess, as not infrequently occurs in long-standing cases of pyorrhea, especially in connection with the molars, upper or lower, removal of the tooth is the one and only remedy.

Just here sharp distinction should be drawn between the ordinary apical alveo-

lar abscess and the more occult and uncommon pericemental abscess. They are entirely unlike in character, in development, in prognosis, and in mode of treatment. The former has been known and treated for years; the latter is of recent discovery, and is comparatively unknown. It was first differentiated by the author in 1897, and full description of it embodied in an article which was published in the August number of the *Dental Cosmos* of that year, under the title "Pericemental Abscess." The closing paragraph of the article is as follows: "The prognosis of pericemental abscess is always unfavorable; have never been able to afford permanent nor positive relief. The only remedy—extraction of the tooth." It would be a great gain to the profession if the conditions which lead to the development of pericemental abscess were more studied and better understood.

It should be the unvarying rule in the treatment of pyorrhea to speedily rid the mouth of all teeth which cannot be made permanently comfortable and useful. Teeth, especially molars, suffering from much alveolar absorption, if they be without natural occlusive antagonism, or any that can be rotated in their sockets, even though such movement be but slight, can never be made to retighten; their retention is a source of perpetual discomfort, a hindrance to mastication, and a positive menace to the health of the mouth. In view, therefore, of the utter inutilty of such teeth, any attempt to retain them is a matter of sentiment alone; every other consideration demands their immediate removal.

Having extracted such teeth as cannot be made serviceable and comfortable, effort should be directed to the removal of all infection of whatever kind from all the remaining teeth. This infection may consist of masses of calcic concretions, coatings of stagnant inspissations, accumulations of septic matter on the exposed surfaces of crowns and roots, between the teeth, in pyorrheatic pockets, or in the many concealed nooks, crannies, and irregularities found in connection with the teeth.

Dentistry affecting to see pyorrhea originate in some occult and unknown constitutional cause has wholly failed to perceive or recognize the power of septic irritants found upon the surfaces of all untreated teeth. As there is no agency more surely destructive of the teeth themselves, nor one more provocative of general systemic disturbance, than the surface infection on them, so there is no more important operation, neither a more difficult process pertaining to the teeth, than the complete and successful removal of pyorrheatic infection. Even when attempted at all, it is an operation performed with such laxity and indifference as to render it of little value.

Successful treatment for pyorrhea lies in the fidelity with which the toxic irritative matter is removed from the surfaces of the teeth, and rational after-treatment maintained. Constitutional remedies are wholly without avail except as cathartics, diuretics, or sudorifics they may facilitate the expulsion of poisons already absorbed. Scraping of alveolar margins, removal of vital bone, massaging of the gums, and various other impractical modes of treatment have been suggested, but none of them indicate any true appreciation of the pathological conditions involved. If necrosed bone is present, which is seldom the case, it is to be removed; beyond this the less disturbance to the tissues involved in removal of the infection, the better the results.

All treatment should be such as surgery would institute for any wounded, abraded, or excised surface in other parts, the difference being in the character of the tissues with which we are dealing and in their environmental surroundings.

There is no organ or tissue in the system to which a tooth, with its anatomical and physiological complexities, can be logically compared. If relieved of infection and restored to healthful condition, being fixed in the oral cavity, the teeth are at once replunged into an adverse environment and resubjected to adverse influences.

What, then, can be done by medical interference? Practically nothing. It cannot be made too emphatic that the treatment consists in frequent and forcible change of environment—a change more mechanical than medicinal in all that pertains to the teeth, and to all mouth conditions. Every effort should be directed to reëstablish healthful nutrition, which has been interrupted, if not

wholly arrested, in the surrounding alveolus, pericementum, and gums. No irritative toxins from the breath, from mouth fluids, offensive food particles, or from other sources should be allowed on the crowns, at the necks of the teeth, or in any pyorrhea pockets. Every concealed recess and nook should be reached and carefully cleansed of all accumulations with suitable instruments; and this followed by the polishing of all exposed surfaces, including pockets, recesses, and depressions, between the teeth, at the gum margins, or wherever infection may be found upon the teeth. This can be effected by hand methods only. All wheels, brushes, or other revolving instruments driven by power, should be wholly discarded. Specially shaped wood points—orange-wood is to be preferred—secured in suitable holders (porte polishers) should be used for this purpose. With these all parts of the mouth and all surfaces of the teeth can be reached and operated upon. The best polishing material is a fine pumice-stone. The dry powder can be taken up and carried to place on the wood points, previously shaped and freshly dipped in water for this purpose. Free application of the pumice-stone, and vigorous use of the wood points, are the most efficient agents known for removing infection from the teeth, and not less for placing them in the most favorable condition to avoid further deposits. This treatment should be repeated every forty-eight to seventy-two hours at the beginning, and continued until there are evident indications of abatement of the inflammatory condition and the closing of the pus pockets, when the intervals of treatment may be gradually lengthened until the limit of about one month is reached.

Every mouth with pyorrheatic tendency should be rigidly subjected to this mechanical treatment at the hands of an expert operator, for relief from the inevitable recurrence of infectious accumulations on and about the natural teeth. This treatment should be supplemented by *local* medication only. Internal remedies are not indicated except as tonics, or in special cases. Perhaps there is no better antiphlogistic or germicide for external use—and the mouth is an external cavity—than that rather disagreeable preparation known as phenol-sodique. It can be used *ad libitum* in the mouth, and with great benefit, after each treatment. I have found it most efficacious applied to the gums on lint or bibulous paper.

After the second or third mechanical treatment the gums about the pyorrhea pockets, and at the points between the teeth where there is greatest eversion of the festoons, should be touched regularly with deliquesced zinc chloride. The handling of this preparation should always be upon wood points. A small stick with point shaped to reach the part may be dipped in the solution and applied as desired. It acts as a stimulant to the nutritional process. Tincture of iodine applied to the gums over a pyorrheatic cavity or tooth is a most valuable adjunct in the stimulation of healthful nutrition.

Results from the treatment as outlined have proven a source of astonishment, and not less of gratification, to many who have interestedly witnessed them. Long-standing cases of pyorrhea, regarded as incurable and practically abandoned by the "constitutional cause" theorists, have readily yielded to this treatment and been cured in from six to twelve months.

SERUMAL DEPOSITS.

Serumal deposits in pyorrheatic pockets are often difficult of diagnosis, and more difficult to remove. These deposits differ greatly in character and manner of formation from the salivary incrustations found upon the necks of teeth at the gum margins. They consist, for the most part, of smooth, hard masses of calcic matter, deposited from the stagnant fluids in the pyorrheatic pockets, cemented to the root in some irregular formation or inaccessible position, on lower teeth especially. They are not the occasion of marked inflammatory action, although the infectious matter is commonly deep-seated. They create pockets beside the roots, in which deposits accumulate until the alveolus separates from the root throughout its whole extent. In many instances the presence of these deposits can only be determined by the thickened condition of the overlying gum tissue—a characteristic of this infection—by the continued pus discharge under pressure, and by the persistent movement of the tooth, often attended with great

force, in a direction opposite the accumulation. Serumal deposits destroy the life of the cementum and pericementum, and when these tissues have once separated, even though the deposits may have been perfectly removed, the vital union is never reëstablished. For this reason extraction of the tooth is frequently the only remedy.

NOTE ON THE USE OF SODIUM CHLORIDE AFTER AN APPLICATION OF SILVER NITRATE.

By Walter R. Griess, M.D.,
Cincinnati, O.

Although silver nitrate remains our standard remedy in cases of chronic anterior and posterior urethritis, it is not free from all objectionable features. Other preparations of silver have recently been put on the market to overcome these objections, and they have succeeded admirably, but not without jeopardizing to some extent the excellent action of silver as we see it in the nitrate.

The use of a solution of sodium chloride after the application of silver nitrate to any part of the urethra has shown itself in my hands to be of great value. This simple method is reported not with any idea of originality, for it has long been used by ophthalmologists whenever silver nitrate was applied to the conjunctiva, with the idea of having the sodium chloride act on any silver salt which might be in excess. Its use in genito-urinary surgery certainly is not general, nor can an instance of its employment be recalled.

The indications and reasons for the employment of sodium chloride after the application of silver nitrate are:

1. The silver salt can be used with greater comfort to the patient, as all excess silver is precipitated. (No bad results need be feared from the resulting precipitate.)

2. The effect that we desire from silver nitrate is accomplished quickly, therefore an excess should not remain in the urethra, as it not only causes unnecessary pain, but actual harm.

3. The caustic effect of the silver salt is eliminated to a great extent.

4. The stronger per cent solutions of the silver salt which are often necessary can be used, for we need fear no overaction nor caustic effect.

5. The application can be made more general. We need not fear the action of an excess on any of the healthy tissue.

6. Clinical evidence shows that this method of application yields excellent results.

The reasons for better clinical results are certainly self-evident when we consider some of the above indications—*i.e.*, that the proper per cent solutions to really do good can be used.

The application of the solution of sodium chloride should be in a manner the same as was employed when the silver was injected, by means of a deep urethra syringe (Keyes-Ultzmann). Enough time should elapse after the application to allow the operator to remove the syringe, wash it out, and then proceed as he did with the first injection.

SEPSIS AND ASEPSIS IN INTRANASAL SURGERY.[1]

By Joseph S. Gibb, M.D.,
Philadelphia.

The triumphs of the abdominal surgeon in these days of antiseptic and aseptic surgery have stimulated all lines of special surgical work, and the modern rhinologist naturally endeavors to emulate him.

So important was the subject of intranasal preparation for operation considered that it occupied a very large portion of the time of two famous scientific medical bodies during the last year, namely, the German Otological Society, May, 1903, and the London Laryngological Society, November of the same year.

Men whose names are household words in the domain of rhinology and otology freely participated in the discussion.

We naturally look to the bacteriologist to start us in the right direction in matters where germs play so important a rôle. Unfortunately here at the threshold we are met by a conflict of opinion

[1]Read at the meeting of the Section of Otology and Laryngology, College of Physicians, Philadelphia, April 20, 1904.

which to the ordinary mind is confusing. One group of observers tell us that the nasal mucous membrane is not a good soil for the development of pathogenic bacteria, and that few are found there. Another group say that all sorts of pathogenic bacteria are found in the nasal chambers.

One point upon which all agree is the preponderance of bacteria in the vestibule of the nose and around the nares.

Clinical experience has long since taught the rhinologist the comparative immunity of the nasal chambers to septic attacks. It is not too strong a statement to make that fewer instances of sepsis occur in intranasal operations than in any other locality of the body. For many years prior to the introduction of the modern antiseptic methods, many harsh intranasal surgical measures were employed, and the instances of sepsis were very few. So true is this that the older rhinologists came to regard the nasal chambers as aseptic.

It is fortunate for the rhinologist that septic attacks are infrequent after intranasal operations. For if it became necessary to render the nasal chamber sterile and to maintain it in that state during the entire reparative period, it would tax his ingenuity to the utmost. In order to accomplish this result, he must be assured that every crevice and sinuosity of the turbinal tissue, and all the accessory sinuses communicating with the nasal chambers, the postnasal space, the Eustachian tubes, etc., are brought in contact, and remain so for a sufficiently long time, with an antiseptic powerful enough to render innocuous all bacteria present.

While the difficulty of obtaining a thoroughly aseptic chamber by the technique of the general surgeon must be patent to all, it *is* possible to employ the usual careful technique of the hands of the operator, the instruments, gauze, sponges, etc., so that no new and perhaps harmful organism is introduced.

Therefore in the more important intranasal operations careful preparation of the surgeon's hands, sterilization of instruments, and the use of sterile cotton, gauze, etc., is indicated. Aside from cleaning of the mucous membrane of crusts, pus, and inspissated mucus, no other preparation of the field of operation is necessary, and may indeed prove meddlesome.

Krebs in Germany and Sir Felix Semon in England, in recent discussions on this subject, speak in no uncertain tones of the futility of elaborate intranasal preparation for operation.

In the preparation of a paper making a comparison of several operations for the correction of deviated septa I have recorded one hundred cases in which more or less extensive surgical work was done. In some of these especial care was taken that the hands, instruments, etc., were carefully prepared immediately preceding the operation. In the greater number, however, the instruments received no more care than a careful surgeon gives to his instruments. In other words, they had been sterilized, carefully put away, and at the time of operation placed in an antiseptic solution. No separate record has been kept of those which were specially prepared and those not prepared, but in a general way I am able to separate them, and so far as these few cases show am unable to see any difference in the progress of the cases or to note the occurrence of septic manifestation in one group over the other.

In these one hundred cases there were four in which sepsis in a more or less severe form was noted. Two of these cases were in private practice, in which special care was taken of every detail of asepsis; the other two were in hospital practice, in which ordinary but no special care was taken. In three of these cases careful investigation revealed conditions which may have precipitated the septic attack; in one case it was not possible to ascertain even a probable cause.

One patient was seized with a severe influenzal attack, which was then prevailing in epidemic form, immediately after the operation, and therefore did not receive the careful after-treatment as would otherwise have been the case.

A second case, immediately after a prolonged and difficult operation involving the correction of a badly deviated septum and dislocation of the columnar cartilage, was foolish enough to take a long automobile ride on a warm and very dusty day. The following day he had a chill and passed through a very sharp septic attack.

The third case left the hospital, despite advice to the contrary, after a very severe septum operation and did not report for one week. He returned with the statement that he had been quite sick with "chills and fever." It was not difficult to diagnose his condition, as both nasal chambers were filled with pus. In the interval of one week, during which he was wearing a septal splint, he was absolutely without any form of nasal treatment.

Here, therefore, are four cases of sepsis in a series of one hundred cases, in three of which, at least, conditions existed entirely outside of the operation which might have been responsible for the septic attack.

Sepsis following intranasal operations in nearly every case, in my experience, first manifested itself by a sharp attack of lacunar tonsillitis, sometimes with an accompanying pharyngitis. The tonsils present an appearance similar to that so frequently observed in the more severe forms of follicular tonsillitis. Constitutional symptoms are present, as is the case in follicular tonsillitis from other causes. The mucous membrane in the nasal chambers assumes a vivid red hue, and the edges of the wound (in those cases in which the septum is incised) show a disinclination to heal. Pus soon appears, and the discharges are offensive and excoriate the alæ and upper lip. In a few cases acute otitis media develops.

So far as my observation goes no case of infection and suppuration of the accessory sinuses has occurred in the septic cases, and this seems all the more remarkable from the fact that other forms of infection, notably influenza, are very prone to involve these sinuses.

However, this may be a mere personal experience, and that of others may be to the contrary.

In my experience septic attacks following nasal operations as a rule have been mild, subsiding usually within a week, and not greatly jeopardizing the result of the operation. In two cases, however, the attacks were sharper, of longer duration, attended by high fever and evidence of general sepsis, subsiding, however, after a time with no more serious results than a perforation of the septum.

While it is the rule that intranasal operations are rarely attended by septic complications, and that when sepsis occurs it is usually mild in character, still, as with every other disease in the calendar, there *is* a mortality. From time to time we read of fatal cases.

For twenty-four years I have done all sorts of intranasal operations, and until this last winter presented a clean sheet as to mortality, but then a case occurred which terminated fatally, in which the primal cause was an intranasal operation.

This misfortune may come to any one of us and at any time, and it may therefore not be amiss to report the case here somewhat in detail.

A vigorous, healthy looking young man presented himself at the clinic of the Episcopal Hospital with a well marked deviation of the septum which he was exceedingly anxious to have corrected. The operation was done under cocaine anesthesia. The septum was corrected by inserting a saw, immediately below the most prominent portion of the deviation, and sawing in an upward and inclined direction through to the other nostril, then pushing the deviated portion through this incision and retaining it in its corrected position by means of a Mayer splint. There was considerable shock following the operation, though no unusual hemorrhage occurred, and in consequence, though contrary to the usual custom, the patient was advised to remain in the hospital, which he did. The next day he left the hospital, the resident physician reporting his condition good. According to directions the second day after the operation the patient called at the office of an assistant; the tube was removed and cleansed, and the nasal chambers were also well cleansed and the tube replaced. At this time his condition was reported to me as good. He was not seen again either by myself or any member of my staff, notwithstanding explicit directions were given him to report at the hospital, until the seventh day after the operation, at which time my assistant was sent for to see him at his home. He was then in a septic condition, showing some evidence of meningeal irritation. His condition rapidly grew worse, he had hyperpyrexia, maniacal delirium, coma, and death on the eighth day after the operation. These symptoms, as detailed to me by my assistant, were strongly suggestive of septic meningitis. No

autopsy was permitted, so that the true cause of death must remain in doubt.

It is a matter of deep regret to me that through some unfortunate misunderstanding I was not permited to see this case after the day of the operation.

What part an imperfect technique played in this unfortunate result, or how much may be attributed to contributory negligence on the part of the patient, must forever remain in doubt.

From this very brief and imperfect presentation of a very important subject the following conclusions are deduced and offered for your consideration:

1. In intranasal operations, other than careful cleansing of the mucous membrane to free it of crusts, pus, inspissated mucus, and foreign maters, no especial antiseptic precautions are necessary.

2. Careful antiseptic preparation of the hands of the surgeon, the instruments, gauze, cotton, etc., is desirable.

3. Sepsis is not the rule after intranasal operations, and when it does occur is usually mild and transient, but it may be rapid, severe, and grave.

4. Nasal sepsis is manifested by follicular tonsillitis, inflammatory changes in the nasal chambers and especially in the wound, and in some cases acute otitis media.

THE TREATMENT OF HAY-FEVER

E. FICK (*Therapeutische Monatshefte,* April, 1904) deals with two methods of treating hay-fever: first, by means of Dunbar's antitoxin, and secondly, by his own method by employing aristol. Dunbar's treatment is based on the assumption that all hay-fever is due to the effect of the toxins of grass pollen. The author considers that Dunbar starts on a false premise. His experiments with pollen introduced into the nose of persons and producing attacks of hay-fever in those who had had this disease before, but not in others, are open to criticism, since the amount of pollen introduced was enormous as compared with the number of pollen which can be gathered in the air under the most favorable circumstances. Next Dunbar refers the eye symptoms to the direct action of the pollen on the conjunctiva. Mohr has recently proved that by protecting the nose by means of a fine filter the attacks keep off altogether and no eye symptoms take place. It therefore follows that some other cause must act in producing the eye symptoms. Our experience teaches us that other things besides grass pollen can produce hay-fever. For example, some people get an attack of this malady as soon as they come into contact with the blossoms of the lime tree, or of roses, while the so-called autumnal fever is generally accepted as being due to the blossoms of the *Artemisia Absinthium.* Fick considers that the antitoxin which, according to Dunbar, produces a short-lived immunity does not and cannot have any action at all.

In the second part of his paper he deals with his theory of the etiology of hay-fever. To start with, the patient is always neurasthenic. The attacks themselves are directly caused by the action of some agent, of which grass pollen is the most common, but by no means the only one. The nasal symptoms are the direct effects, and the eye symptoms are reflex symptoms. He goes on to give his reasons for denying that the nasal symptoms are due to vasomotor disturbances, while he tries to show that irritation of the nerve endings of the trigeminal causes a hypersecretion. The hypersecretion in the case of hay-fever is localized in the antrum of Highmore, and the fluid finds its way into the middle nasal fossa naturally. He states that he has found in aristol a means of curing all forms of nervous coryza, including hay-fever, when it is applied locally to the affected part. He is able to pass a cannula, which is very thin and curved in correspondence to the lower turbinated bone, into the maxillary antrum in about 95 per cent of all cases. Through this cannula he blows the aristol powder into the antrum, and finds that, as a rule, this need only be done six or seven times to produce a complete effect. By way of illustration he appends a number of cases which have been treated successfully in this way. At first he applies the powder every day for three days, after which time the attacks become much less frequent and milder, and often stop altogether. When they recur he again repeats the insufflation.—*British Medical Journal,* June 11, 1904.

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Leading Articles.

PICROTOXIN AND "KNOCK-OUT DROPS."

From time to time physicians in active practice are called upon to treat cases of sudden unconsciousness developing during or subsequent to an alcoholic debauch. In the majority of instances this condition is met with amongst the lower classes, and is probably due to the use of a large quantity of impure whiskey. It is, however, of very great interest to note that a certain proportion of these cases are not due to the effects of alcohol alone, but have their origin in the introduction into the alcoholic beverage of some powerful nervous depressant. In some instances opium or morphine has been employed. Much more commonly chloral is used, and it is evident from an article which appears in the June issue of the *St. Paul Medical Journal* by Carel, of the University of Minnesota, that, in some portions of this country at least, picrotoxin is used for the purpose of stupefying individuals who with their pockets filled with newly received wages proceed to spend a part of it in alcoholic excess. Carel mentions three cases of poisoning. One of these was an attorney who, being opposed to liquor dealers, occasionally took a drink in a saloon in order to obtain evidence. The barkeeper introduced into the liquor what he called "extract of hazelnut," but in reality cocculus indicus, in order "to improve its flavor." In another instance a physician received the so-called "extract of hazelnuts." In still another a business man received the same drug; and Carel informs us that the so-called "lumberjacks," or men who work in lumber camps during the winter, are frequently doped in this manner when they come to the city to spend their earnings. He also points out that if *Cocculus Indicus,* from which picrotoxin is derived, is placed in whiskey, it very closely resembles the general appearance of a hazelnut kernel in the same liquid.

The symptoms produced by this so-called "extract of hazelnut," when the dose has been moderate, consist in the speedy onset of dizziness and deep sleep. If the dose has been larger the patient may develop epileptiform convulsions, or the convulsive seizure may be alternately tonic and clonic, the pupils being dilated, and the spasms are followed by paralysis, delirium, coma, and death. In view of the fact that picrotoxin has not been used commonly as a poison in the past, and that many physicians are ignorant of its effects, it is probable that no safer death-dealing drug can be used for criminal purposes in connection with alcoholic beverages. It is important to note that when picrotoxin is taken with alcohol the loss of power in the voluntary muscles is very much greater than it is in ordinary cases of drunkenness. It will probably be well for every physician who is called upon to examine a case of alcoholic coma to remember the possibility of the patient having received for criminal purposes this powerful drug.

HARMFUL METHODS OF PRESERVING FOOD.

We have been very much interested in an article contributed to the *Boston Medical and Surgical Journal* of May 26, 1904, by Dr. Charles Harrington, upon the employment of sulphurous acid and its salts as food preservatives. Several times

within the past few years we have published in our Progress columns articles by foreign investigators which have seemed to prove that many of the so-called food preservatives exercise no deleterious influence upon persons who might ingest them in the small quantities which are employed for the purposes named. Notable among these was an article by Professor Liebreich, of Berlin, which was distinctly in favor of the use of these substances for preserving food on the ground that foodstuffs could be made cheaper for the poor, and yet be incapable of doing harm. In the article by Dr. Harrington to which we have referred, he points out that sulphurous acid and its sodium and calcium salts have long been used as preservatives of almost every kind of food, both animal and vegetable, and that canned corn and canned asparagus are bleached to a uniform white, and meats are reddened to the hue of arterial blood, by the use of these chemicals, either in powdered form, in solution, or in combination with borax and boric acid.

It would seem probable that these substances are used chiefly for the preservation of those cheap forms of meat which are prepared from trimmings and other parts which otherwise would be unsalable, particularly that form of hashed meat which is generally called "Hamburg steak." Notwithstanding the fact that these compounds preserve the color of the meat, it is noteworthy that they do not materially diminish putrefactive changes, and seem to exercise but little more antiseptic influence when present in large quantity than when present in small amounts. On the other hand, these substances, while not diminishing the growth of bacteria, do nevertheless diminish the odor of putrefaction, and Harrington quotes Altschuler as finding 1,890,100,000 bacteria per gramme at the stinking stage of chopped meat, while another portion which had been treated with one per cent of the sulphite of sodium did not stink, although its bacteria content was 4,757,000,000 per gramme. The average purchaser who bases an opinion as to the quality of meat by its color and odor can therefore be readily misled into the purchase of food which is far advanced in decomposition; the only test which can be employed being the fact that if fresh the meat does not adhere to the fingers, and if stale it sticks to the fingers and feels slimy.

That these salts are largely employed in the preservation of foods is shown by the fact that in Dresden fifty-four samples contained from 0.46 per cent to 1.0 per cent, and that somewhat similar results were obtained in many other German cities. In Boston—and Harrington believes that the same conditons exist elsewhere—he found fifty samples showing the presence of the sulphite of sodium in somewhat similar quantities, the prices ranging from seven to fifteen cents per pound; the samples being obtained not only from the shops which supplied the poorer classes, but from those who sold to the well-to-do also. In one case where the percentage of sulphite of sodium was not very large the brilliant red of the meat depended upon the presence of an anilin dye. Many of these samples were good to look upon, but were slimy and sticky when handled.

A certain proportion of those who take foodstuffs preserved in this way suffer from eructations of sulphur dioxide and hydrogen sulphide, from a sense of weight in the stomach, discomfort, and headache. In other instances it would seem that these preservatives exercise serious pathological influences upon the organs of the body. Thus, Kionka found that nephritis very frequently developed, and although Liebreich has criticized his results, it is a noteworthy fact that the German Imperial Board of Health has forbidden the employment of these substances. In Harrington's own experiments, he fed five cats for twenty weeks with food containing 0.2 per cent of sodium sulphite; a sixth cat received meat from the same source which did not contain this drug. At the end of twenty weeks it was found that most of the organs of the cats were healthy with the exception of the kidneys, which in every case, except that of the control cat, showed marked changes, which consisted chiefly in fatty degeneration of the epithelial lining of the uriniferous tubules. We think it unfortunate that in these experiments the cats should have been killed by chloroform, as the possibility exists that the changes in the kidney were in part the result of the action of this drug. While this possibility is remote, it serves to throw a slight doubt upon the absolute accuracy of the research.

WHAT SHOULD THE MEDICINE CASE HOLD?

We have recently published in our Correspondence columns an article in which a general practitioner, practicing in a country district, saw fit to enumerate the remedies which he had found most useful in the medicine case which he found necessary to carry on his daily rounds. The physician who lives in a city or large town usually depends entirely upon prescriptions for the dispensing of his remedies, although at the present time, in many instances, it is found convenient, even by the city practitioner, to carry a small case in which certain common remedies may be found. It is manifest, on the one hand, that the country practitioner must carry with him a sufficiently large assortment of drugs to meet all the indications which will come to him in a diversified practice. Yet, on the other hand, it is certain that he who carries an unnecessarily large number of remedies will soon find that he is overburdening himself, and after several months perceive that some of his bottles have remained untouched. Probably no physician of experience has failed to be surprised at finding that certain drugs which he placed in his case have scarcely been used, while others have had to be renewed several times within a week. It is evident, therefore, that a comparatively small number of remedies are in constant demand, and it is with these that we propose to deal, although doubtless certain physicians will feel that some of the remedies which are not named deserve a place in this list.

Of the emergency medicines suitable for a medicine case may be named hypodermic tablets of cocaine hydrochlorate, which can be used in extracting foreign bodies from the eye and for other local anesthetic purposes, including minor operations. These tablets will usually be of from ⅛ to ¼ of a grain in strength. The second line of tablets are uncompressed tablet triturates of bichloride of mercury for the preparation of antiseptic solutions. Thirdly, we should mention acetanilid in powder, in which form it may be used for the relief of neuralgic pain, for the arrest of obstinate vomiting, as a surgical dressing, and as an antipyretic. Fourthly, there may be named hypodermic tablets of ¼ of a grain of morphine sulphate, which can either be given by the mouth or employed hypodermically for all the various purposes for which we employ this important drug. Lastly, hypodermic tablets of 1/20 of a grain of strychnine should also be included in this list for obvious reasons. Of the remedies which can be used for subacute or ordinary conditions, calomel of course stands at the head of the list, and it is probably wise to have it in plain tablets, and also in tablets combined with ipecac. Not infrequently calomel fails to produce the prompt effects which we desire because this valuable stimulant to the intestinal glands is not combined with it. Yet, on the other hand, there are some cases in which a dose of calomel must be so large that were it combined with ipecac too great an ipecac influence would be produced. In the same class of remedies should be included Dover's powder in two- or three-grain tablets, and tablets of the fluid extract of aconite in the dose of 1/10 of a minim, since by this means a quantity suitable for a child can readily be dispensed, and by giving several tablets a full aconite influence can be produced in an adult. Still another tablet, or pill, which must find a place in every case is the well known formula containing aloin, strychnine, and belladonna, and in addition it may be well to have another tablet or pill containing the ingredients of the compound cathartic pill of the United States Pharmacopœia, or the so-called "vegetable cathartic pill" made under the same authority. Another tablet which is exceedingly useful is that which is known as the Chlorodyne tablet, which can be used for the relief of pain and the control of sharp attacks of diarrhea. Under the name of "Rhinitis Tablets" there is now marketed by almost all manufacturers a preparation composed of a small quantity of quinine, camphor, and belladonna which is useful in the early stages of an acute cold, and which may often be employed in association with Dover's powder in tablet form for breaking an acute cold in its early stages. It is hardly necessary to state that quinine, in soft capsules, or easily dissolved pills, and not in compressed tablets, must find a place in this collection.

There still remain two other tablets which will prove useful in a large number

of cases, namely, those which contain digitalis alone, and those which are composed of the well known formula consisting in digitalis, nitroglycerin, strophanthus, and belladonna. Last, but not least, every case should contain a tablet, or pill, of nitroglycerin. The advantage of having a hypodermic tablet of this substance is not only that it can be given hypodermically, but also that by dropping it in water and using a teaspoonful of the solution every hour an effect can be exercised upon the circulation which is practically identical with that which we produce in children by the employment of sweet spirit of nitre. For the physician who practices obstetrics, and what general practitioner does not, ergot, in tablet or liquid form, preferably in the form of ergone, will of course be necessary. Of preparations which will be found useful in more chronic conditions, several stand preëminent. The first of these may be said to be the protiodide of mercury in ¼-grain tablets; the second, iodide of potassium or strontium; the third, bromide of potassium.

In conclusion we may say a word in favor of the ordinary tablet triturate as against the compressed tablet triturate, which, in the great majority of instances, has to be compressed to such a degree of hardness that it is slowly dissolved in the normal stomach, and often not dissolved at all in the digestive tract of the patient who is ill. A very large number of other remedies may be added to this list, but these are the ones with which the young physician must provide himself, and to these may be added others as experience teaches him his additional needs.

THE DECREASED USE OF ERGOT.

Twenty years ago there was probably not a single teacher of obstetrics in the United States who did not instruct his students to administer to the parturient woman at the beginning of the third stage of labor a wineglassful of the wine of ergot, or a teaspoonful of its fluid extract. Indeed, it is probably a fact that most physicians within the last twenty years have considered that ergot should be given with the same regularity as they would consider it necessary to ligate the cord. With a better understanding of the fact that labor is a physiological process, in many instances, the fact has come to be recognized that in the average healthy woman there is no need for the administration of this uterine stimulant, and that the danger of postpartum hemorrhage, in the great majority of cases, is remote rather than near. It has also been recognized that ergot may be disadvantageous in that it may lock up in the uterus clots and other materials which might otherwise be normally extruded; and again, it is probable that the use of a dose of ergot at the beginning of the third stage of labor has little if any influence upon the uterine muscle until long after this stage has been completed, when it may produce powerful uterine contractions, which are unnecessary and painful, and which exaggerate the so-called "after-pains."

We have repeatedly in the columns of the THERAPEUTIC GAZETTE endeavored to impress upon our readers the fact that there is no drug so valuable that it can be used as a routine measure without careful thought, and so, while on the one hand it is very far from our intention to attempt to diminish the value of ergot as a uterine stimulant, on the other hand it should be given only to cases that need it actually, and not to every patient in the course of delivery. When we consider that at one time ergot was employed by some practitioners to overcome uterine inertia in the second stage of labor, and that many patients were thereby seriously damaged by the powerful uterine contractions which ensued, it is evident that the drug has been responsible in the past for disastrous effects. We now know that cases of uterine inertia can be stimulated to the completion of the delivery by the use of one or two cupfuls of strong, black coffee, by the administration of a hypodermic injection of strychnine, or by the use of a little coca wine, or the wine, or fluid extract, of kola, all of which substances act by rallying the exhausted powers of the system, and supplying sufficient nervous energy for the completion of a physiological process.

Within the last few months a number of papers have appeared in which the use of ergot has been advocated as a stimulant to the vascular system in the course of acute infectious diseases, such as pneumonia and typhoid fever. This suggestion

is by no means a new one. The fact that this drug has not attained great popularity when used for these purposes in the past would seem to indicate that it is not of very great value, and we doubt whether the enthusiastic reports to which we have referred will do more than cause a moderate return to its use for its general vasomotor effect. In other words, the time has come when ergot has at last been placed in the niche to which it belongs, which niche may be labeled "Useful in certain cases, but not in all."

IMMUNIZING INJECTIONS EMPLOYED FOR THE PREVENTION OF POST-OPERATIVE OR POST-TRAUMATIC PERITONITIS.

It is well known that even by the most careful technique it is impossible to perform resections or anastomoses involving the gastrointestinal tract without infecting the peritoneum to some extent. This infection, in a moderate extent unaccompanied by extensive traumatism, and by local developments incident to prolonged operations, is of no serious import, producing at most a merely local and transitory reaction. It occasionally develops, however, into a fatal peritonitis, even when every precaution has been taken by the skilled operator; hence the importance of measures having for their end either the prevention of this infection or the increase of tissue resistance to such an extent that the infection may prove innocuous.

Mikulicz-Radecki (*West London Medical Journal*, July, 1904) experimenting in the latter direction, notes the fact that certain injections administered hypodermically produce an artificial hyperleucocytosis associated with an increased bactericidal value. Salieri, moreover, has shown that by injections of small quantities of normal saline solution the natural resistance of the peritoneum against coli infection could be increased by sevenfold to sixteenfold. Mikulicz-Radecki, in his laboratory research, first demonstrated that injections of 0.5 per cent neutralized nucleic acid increased the power of resistance of the peritoneum sixteen to twentyfold. Repeated intraperitoneal injections raised the resistance of the peritoneum to forty times the normal.

For the purpose of simulating to some extent natural conditions, laparotomy was performed upon a number of guinea-pigs, and through an opening in the stomach or intestine such contents as could be obtained from the immediate neighborhood of the incision was squeezed into the peritoneal cavity. Four out of five animals not previously prepared died of peritonitis within sixteen hours. The fifth, after a serious illness, recovered. Of the ten animals similarly treated, but prepared beforehand by injections either of nucleic acid or of sterilized bacteria coli, all recovered. In each case laparotomy was performed seven hours after the injection, this having been found to be the time when the hyperleucocytosis developed.

A further line of experiment, in which the immunizing injections were made some time during or after the operative infection of the peritoneum, showed that the therapeutic effect was much less marked than when such injections preceded infection.

On the basis of this experimental research, neutralized nucleic acid was employed in the surgical clinic as a preparatory measure for operations upon the gastrointestinal tract. As a rule 50 cubic centimeters of a two-per-cent solution was used. The adult man received about 1 gramme of nucleic acid to 75 kilogrammes of body weight. Fifty-eight cases were treated in this way. In fifty-five the operations were abdominal. In four cases the operations were postponed, so that they did not take place until more than thirty-four hours after the injection was given.

As in animals, there was constantly observed in man a hyperleucocytosis in the blood, mostly preceded during the first hour or so by hypoleucocytosis. The operations were mostly performed in from thirteen to nineteen hours after the injection. The optimum for nucleic acid injections is reached in animals in seven hours, but it seems to occur in man considerably later. Twelve hours is the time fixed by experience, which enables the surgeon to operate on the rising tide of leucocytosis.

As to the technique accompanying the injection of nucleic acid, the most unpleasant factor for the patient is local reaction. A tenderness and slight swelling around

the point of injection remains as a rule throughout the day. Twice there was an intense and erysipelatous redness, which disappeared without leaving a trace twenty-four hours after. There was noticed also a slight increase of temperature of one or two degrees; very exceptionally it rose to 102°. There was no alteration in the urine, and no change in the patient's general condition.

In 10 cases of resection of the stomach for carcinoma, 9 recovered. The tenth died; after seven days of uninterrupted progress he developed pneumonia, which proved fatal three weeks after operation. Of 22 cases of gastroenterostomy and enteroanastomosis, 19 recovered, 3 died. None of these fatal cases was due to post-operative peritonitis. Of 6 cases of resection of the intestine, 4 recovered, and 2 died; and neither of these was due to post-operative peritonitis. The after-course of the remaining cases showed entire absence of peritonitis.

In addition to the use of nucleic acid, Mikulicz-Radecki employs copious flushing with normal salt solution, leaving as much as is practicable in the peritoneal cavity.

The general impressions gained from this method are that while it gives no absolutely certain immunization as would a specific, it increases the natural immunity, and that the cases treated by it have given more favorable results, both as to ultimate recovery and smooth convalescence, than cases where the operations were performed without this preparation.

This immunization is based on such clear laboratory findings that it is worthy of careful consideration.

MESENTERIC EMBOLISM.

The fact that Jackson, Porter, and Quinby (*Journal of the American Medical Association,* June 4, 1904) have been able to collect 214 cases of mesenteric embolism and thrombosis, a pathological condition which in its symptoms so closely resembles other intraperitoneal lesions as to render diagnosis only possible when operation or autopsy has been performed, is convincing proof that this accident or complication is one of such frequency as to make its study a matter of great clinical importance.

It is pointed out that because of failure in the collateral circulation the occlusion of the mesenteric arteries causes symptoms practically identical with those incident to closure of the veins.

The cases of etiological moment are those which lead to the formation of thrombi, from which emboli may arise. Thus arterial disease, especially of the mesenteric arteries, takes first rank. In cases of venous thrombosis the process may be primary or secondary. All intestinal changes allowing the passing of bacteria into the vessels are predisposing factors. The secondary venous thrombosis follows cirrhosis and syphilis of the liver, pylephlebitis, and processes at the liver hilum.

In the acute group, which constitutes the larger one, the disease is characterized by sudden onset of colicky, abdominal pain, followed by nausea, vomiting, often bloody, and diarrhea, also often bloody; or the symptoms may resemble those of intestinal obstruction of the paralytic type. The temperature falls below normal and the abdomen becomes distended. Peristalsis disappears, and death occurs in a few hours or days.

In the smaller group the onset is insidious and chronic. There are no abdominal symptoms. Sometimes spontaneous cure results.

Over one-half of the cases occur between thirty and sixty years of life.

The diagnosis is extremely difficult, but is based on there being present a source of the embolus, copious intestinal hemorrhages, unexplainable by disease of the gut wall or by hindrance to the portal circulation; quick and marked fall of body temperature, colicky abdominal pains, followed by distention and free fluid. The presence of emboli in other parts is shown by history. There occurs sometimes a large palpable blood tumor between the layers of the mesentery. The symptom-complex is rarely present in its entirety.

As to prognosis, this is very grave. There is a mortality of 94 per cent in all the reported cases. In chronic cases, attended by few exacerbations, the prognosis is moderately bad.

No treatment aside from operation seems to promise help. In 47 cases oper-

ated upon there was a mortality of 92 per cent.

Elliott resected 48 inches of gut with complete recovery. The autopsies showed 24 non-operative cases in which less than this quantity of gut might have been resected. In 15 of these cases there is reason to believe that operation might have been effective.

The authors advise against operation followed by immediate anastomosis. They would bring the involved gut well out of the wound, with liberal sound margins left at either end. After resection they would fix the open ends in the wound well walled off with gauze tampons. If peritonitis be present, it is combated by flushing with hot saline solution.

OPERATIONS FOR PROSTATIC HYPERTROPHY.

It has long been recognized in medical practice that the diseases least amenable to the influence of drugs are those which in therapeutic systems are found to have indexed beneath them the greatest number and variety of medicines. Applying this same reasoning to surgery, it might be held that enlarged prostate was a pathological condition with which the surgeon had not yet learned to cope, since there have been suggested, and are still practiced for its cure, prostatotomy, by the actual cautery either applied through the urethra or perineal incision; castration, ligation of the vasa deferentia, vasectomy, and angioneurectomy, prostatopexy, ligation of the internal iliac arteries, and prostatectomy through the perineum, by the suprapubic route, or by a combination of the two. There are a large number of surgeons, moreover, who believe that by the judicious use of the catheter operation may be avoided entirely, and some few who by permanent suprapubic drainage overcome the urethral obstruction.

In an admirable review on the whole subject, Watson (*Annals of Surgery*, June, 1904), first taking up the subject of palliative operations, shows that in greatly prostrated patients suffering from retention which does not yield to ordinary instrumentation, or from intravesical hemorrhage uncontrollable by ordinary means, or a urine so ropy and purulent that it will not run through a catheter, or from a lacerated urethra so tender as to make catheterization agonizing, or from a bladder so hypersensitive and giving such spasmodic action as to require undue frequency of catheterization, drainage as a preparatory stage to radical operations is an absolute necessity. Under these circumstances, or a combination of them, he advocates perineal drainage, and has long since shown that this is really a safer and less formidable operation than that of passing a trocar and cannula suprapubically, introducing into the latter a drainage tube. Drainage, moreover, has an admirable effect upon the kidney function.

In making a choice between the perineal and suprapubic complete operation, or a combination of the two, Watson first discusses the relative dangers of the three.

The mortality of the perineal total removal and the Bottini operation is the same, and is decidedly lower than that of operation by any other method. The suprapubic method, for instance, is almost five times greater. The four factors, uremia, sepsis, shock, and pulmonary complications, accounted for all but a very small number of deaths. Curiously enough, whilst the deaths from uremia bear about the same proportion to the total number of deaths in each operation, the deaths from sepsis are more than 50 per cent in the Bottini operation, less than 18 in the perineal, and less than 9 in the suprapubic. Shock, however, gives much the larger percentage of deaths in the suprapubic operation, and this is also true of the pulmonary complications.

As to the late results of these cases, Watson holds that only those are cured who can empty the bladder spontaneously, or who have at most a residual urine of not more than 50 cubic centimeters, whose urine is normal, and who can pass it freely and painlessly, and in whom this condition has been maintained for at least six months after operation. He has analyzed 688 reports of cures to determine the late results, and finds that the Bottini gives 30.4 per cent of cures, the perineal total removal 60 per cent, and the suprapubic total removal 66 per cent. All the operations give from 86 to 90 per cent of improvement. Meyer in a series of 59 Bottini operations noted as complications, perineal abscess, rectourethral fistula, epididy-

mitis, orchitis, and gangrenous testicle. Twenty-two per cent of the whole number exhibited serious or annoying complications, and in 13 per cent of the cases the operation had to be repeated. There was incontinence of urine in 2.6 per cent, and the operation failed completely in 11.6 per cent of the cases. Of the 69 fatal cases following Bottini operation, 8 were due to perforation of the bladder by the incising blade. Of the complications of the perineal operation, the peritoneum was opened twice, this resulting once in death; urethrorectal fistula occurred in 2.7 per cent of the cases, incontinence in 3.5 per cent, and failures in 7.4 per cent. The suprapubic operation gave fistula in 1 per cent, urinary infiltration in 1.6 per cent, peritonitis in one case, injury of the rectum once, and failure of the operation in 6.7 per cent.

The essentials for successful performance of the perineal operation are free exposure of the gland, making the latter accessible, and maintaining it in a fixed position while removing it, avoiding injury of the urinary sphincters, of the rectum, of the urethra and ejaculatory ducts, and the avoidance of hemorrhage.

The incision preferred is a curved one, extending from one ischial tuberosity to the other in front of the anterior margin of the anus. The key-note to reaching and freely exposing the fibrous sheath of the prostate is freeing the rectum from the posterior urethra and prostate. This is done by a transverse division of the tendinous center of the perineum, and blunt dissection between the prostate and the rectum until the outer covering of the former is fully exposed over its forward and posterior surfaces.

The prostate is rendered accessible for exposure either by downward traction upon the farther end of the gland by the tips of two fingers in the rectum, or by the tip of one finger passed through a median incision in the posterior urethra into the bladder and hooking it over the intravesical aspect of the lateral lobes. In very fat subjects one of the various tractors may be needful.

The gland may be removed by opening the prostatic urethra from its anterior end through about two-thirds of its length. The forefinger is passed into the urethra through this cut. The lateral aspect of the prostatic urethra is then opened about midway in its length on one side sufficient to admit the tip of the finger. The glandular mass is then separated along its urethral side, then beneath, in front and over the lateral aspect, and finally from the bladder. The enucleation is always carried on inside the outer sheath or capsule. The thinnest parts of the sheath are found along the urethral side and the bladder side of the gland. It may be absent or very delicate in these places, the mucous membrane alone covering the glandular tissue there.

The lobe having been separated, it is seized in forceps and removed through the opening of the urethra.

Hemorrhage is avoided by carrying on the enucleation between the inner capsule and its outer sheath. In some cases the latter separates into lamellæ; in others it is extremely thin. Injury to the rectum is avoided by blunt dissection, by not trying to withdraw too large a mass through too small an opening, and finally by not making downward pressure upon an already enucleated lobe or lobes by the finger passed above them, and in attempting to draw the mass out by it.

The improvements of the Bottini operation embrace better instruments, knife-blades, properly regulating the size of the cut, and an operation planned on the basis of a careful preliminary cystoscopic examination.

The decline in the mortality Watson attributes to improved technique, notably in connection with the perineal radical operation, and in a smaller degree to better selection of patients for the application of the operative treatment.

The most important steps in advanced technique have been the introduction of new means for making the gland more accessible, for maintaining it in place during its removal, and the adoption and adaptation of the appropriate incisions and methods of removal of the hypertrophied mass, whereby this is accomplished in the most complete manner with the least injury to the structures involved. Indeed, it is thus possible to preserve the urethra uninjured, and the same is true in respect to the ejaculatory ducts. It is particularly urgent, in view of the success of the modern operation, that the radical operative treatment should be adopted at an early

stage of the malady; in other words, as soon as the hypertrophy can be clearly detected by examination, if it has not already given rise to alarming symptoms. The method of choice is total removal of the gland by perineal incision.

MERCURIAL INJECTIONS IN THE TREATMENT OF SYPHILIS.

Some years ago the treatment of syphilis by hypodermic injection was warmly advocated by a few enthusiasts, and temporarily adopted by many of the profession, who were led to believe that by this means this specific medication could be introduced painlessly, secretly, and more effectively than by other methods. The fact that, as a routine procedure, the injection method has practically been abandoned all over the world seems sufficiently conclusive as to its value. It is quite true that by the use of cleanly methods and proper solutions abscesses will never develop. It is also true that where proper precautions are observed, and the patient kept under observation, salivation is most unlikely to occur, since this, in the most severe form, rarely occurs in the hands of the expert except when there is undetected renal lesion. It has been the experience of every one who has given the hypodermic method of medication a fair trial, however, that occasionally, and for no particular reason, an injection will cause a pain so severe as to be temporarily crippling. It is also the general opinion of the profession that syphilis can be permanently eradicated only by prolonged treatment, at the very least for two years, preferably, interrupted, for four years. None the less, Wickham (*Practitioner,* July, 1904) states that the hypodermic method is taking permanent place in the treatment of the disease, and he calls attention to the fact that the technique of the method has been gradually perfected.

Wickham points to the fact that this method spares the stomach, that more exact dosage is rendered possible, and that the drug penetrates more directly into the blood stream. He holds that malaise and slight fever indicate the limit of tolerance. As to the site for injection, the gluteal region is chosen. The injection should be driven deep into the muscles. The syringe employed is preferably of glass. Platino-iridium needles are used. For the reception of the mercurial solution, small glass bulbs, hermetically sealed, are recommended, and these should be warmed. For the purpose of avoiding subsequent pain, the injection is started very slowly. The patient is asked if it hurts. When he makes complaint the needle is either withdrawn or pushed farther in, since pain indicates that the needle impinges on a nerve filament.

The preparations employed are either soluble or insoluble. The soluble preparations are rapidly absorbed into the circulation; the insoluble on the other hand form deposits which are only gradually assimilated in the course of several days.

Of the soluble salts, biniodide of mercury, benzoate of mercury, and cyanide of mercury are preferred, and in solutions of 1 to 100, one cubic centimeter being given at a time, which may be increased to three cubic centimeters. The doses should be given daily for about a month.

Of the insoluble salts, purified mercury, calomel, and basic salicylate of mercury are employed, made up by rubbing together with vaselin.

This hypodermic medication in individual cases is extremely serviceable. It is especially indicated when a rapid effect is imperative. The fact, however, that all the world-renowned centers for the cure of syphilis practice its treatment with inunctions proves beyond controversy that this is the most practicably efficient method of introducing the drug.

Reports on Therapeutic Progress

THE TREATMENT OF HEMORRHOIDS.

Editorially the *London Practitioner* for June, 1904, gives the following advice as to this condition. After reminding us that it is, and always has been, customary to divide hemorrhoids into two varieties, internal and external, it adds that it is important for the practitioner to recognize this classification before commencing treatment. The external variety are either hypertrophies of the skin surrounding the anus, or venous tumors situated at the anal margin and covered by skin. Inflammation occurring in an ex-

ternal hemorrhoid is popularly called "an attack of the piles," and this is the earliest symptom pointing to the presence of the condition. It is possible, by recognizing the causes of this, to give advice which will often avert attacks. Persons suffering from external hemorrhoids should be warned against constipation, overeating, and overdrinking, all of which indirectly tend to produce inflammation. Too much and too little exercise should be equally guarded against. The anus should be carefully cleansed; neglect of this precaution often leads to attacks of inflammation.

When inflammation occurs, it is most important to recognize the condition as one of external hemorrhoids, and not to regard it as a prolapse of internal piles. Active exercise should be forbidden, and the diet must be restricted, very little meat being allowed, while alcohol should be entirely abstained from. The bowels should be caused to act by some simple aperient. Probably the best is sulphate of magnesia taken in the morning, fasting; some aperient water may be substituted for this, and another very useful aperient is a mixture of equal parts of the confections of senna and sulphur in teaspoonful doses.

The local treatment consists in applying some soothing, and at the same time astringent, lotion or ointment. As a rule ointments give more lasting relief than lotions, and they are more easy of application. As an ointment we may order bismuth subnitrate 1 drachm, cocaine hydrochloride 4 grains, and vaselin 1 ounce, which will often be found very useful; or we may substitute extract hamamelis 1 drachm, lard 1 ounce.

If a lotion be preferred, lead water with or without laudanum may be prescribed.

Under this simple treatment the attack will often very shortly subside. Sometimes, however, the symptoms increase in severity, the hypertrophied tags of skin around the anus become very edematous, and the venous tumors undergo thrombosis. Pain is severe, especially on sitting, exercise, and defecation. Some constitutional disturbance is also present. Such patients should be confined to bed, and either of the above mentioned ointments, or ointment of galls and opium of the British Pharmacopœia, or equal parts of the extracts of opium and belladonna, should be applied. Hot fomentations often relieve the pain. Some patients, however, prefer cold applications. The acuteness of the pain will often subside under this treatment. Should it not do so, it is sound practice to incise the edematous tissue or to excise the V-shaped portions of it. Should suppuration occur, early incision is imperative. In the event of the occurrence of thrombosis, the tumor should be incised, the clot turned out, and the cavity packed and allowed to granulate from the bottom.

Internal hemorrhoids are of three varieties, according to the classification adopted by most authors—capillary, arterial, and venous. The capillary variety resemble arterial nevi. Hemorrhage is their one sign. The hemorrhage is arterial, frequently repeated, and very exhausting. A digital examination of the rectum will probably reveal nothing. The diagnosis is based on the one sign—hemorrhage—and on ocular inspection. The hemorrhage can often be controlled by astringent injections into the bowel. Useful injections are sulphate of iron (gr. ij to ℥j) or liquid hamamelis one ounce night and morning. If this fails to check the hemorhrage, operation should be undertaken.

Arterial piles cause arterial bleeding, which is only rarely relieved by palliative measures, *e.g.*, the above mentioned injections. Prolapse is infrequent, but a tumor or tumors may be felt on digital examination. For the relief of this condition operation has generally to be undertaken.

Venous hemorrhoids cause symptoms owing to the hemorrhage and discharge which they occasion, but more frequently by becoming prolapsed. Prolapse takes place at stool only at first, later on at other times; and finally prolapse may be continuous, and the sphincter so stretched that the patients are unable to retain flatus and feces. Venous tumors may often be relieved by attention to general principles, such as regular exercise, avoidance of excesses at table, and maintenance of regular action of the bowels. Aperients which are found to suit individual patients best should be given. One or other of the following may be selected: Sul-

phate of magnesia, confection of senna and sulphur, rhubarb pill, mercury pill, colocynth and hyoscyamus pill. Should palliative measures fail to relieve, should the tumors be very large, should hemorrhage or discharge be profuse, and should a marked tendency to prolapse be present, operation must be undertaken.

It not infrequently happens that internal piles prolapse and become grasped by the sphincter ani and occasion severe pain. Should the practitioner be called to such a case he should apply a 10- or 20-per-cent solution of cocaine to the prolapsed portion, waiting a few minutes for the cocaine to act; and should then by gentle compression and upward pressure endeavor to return the mass. If this maneuver prove unsuccessful, the application of cold may reduce the size of the tumor, and then reduction may be successful. If this be unsuccessful, suppuration and the separation of sloughs should be encouraged by warm applications, some soothing ointment being at the same time applied.

THE TREATMENT OF CHRONIC DYSPEPSIA IN CHILDHOOD.

In the *Birmingham Medical Review* for January, 1904, JORDAN states that drug treatment is necessary in all cases of chronic dyspepsia in children, and to be effective must be continued for a long period. It is well, therefore, to warn parents at the outset that the condition is one which cannot be cured unless they are prepared to carry out the treatment prescribed steadily and persistently.

During an actual catarrhal attack, or where the directly dyspeptic symptoms are prominent, such a draught as the following, to be given three times a day fifteen minutes before meals, may be prescribed:

℞ Sodii bicarb., gr. vj;
Tinct. nucis vom., min. ij;
Sp. chloroformi, min. ij;
Aquæ menthæ pip., q. s. ad f℥ij.
M. Ft. Haust.

If constipation is present, as is so often the case, it must receive the most careful attention. Cascara in the form of a draught at bedtime is very useful, and it may thus be continued, while other medical treatment varies with the necessities of the case, throughout the whole period, or as long as it is required. The following formula may be suggested, or one of the "elegant" preparations of the chemist may be used:

℞ Extracti cascaræ sagradæ fluidi, min. x;
Tinct. nucis vomicæ, min. ij;
Tinct. belladonnæ, min. v;
Glycerini, min. x;
Aquæ menth. pip., ad ℥ij.
M. Fiat haustus, hora somni sumendus.

The constipation may in some cases be met by the introduction of rhubarb or magnesia into the draught before meals. This involves remembering to continue laxative treatment in some other form when the subsidence of the "gastric" symptoms, leaving the patient with weakness, lassitude, and poor appetite as perhaps the chief complaints, enables one to begin a course of iron, five minims of the chloride with a little strychnine in two drachms of chloroform water immediately after meals. Cod-liver oil may be combined with iron at this stage. A recurrence of catarrh will often compel reversions to the earlier type of treatment.

In cases of very feeble children advantage may be derived from the use of one of the preparations of digestive ferments.

Dr. Eustace Smith's warning against tonic syrups in these cases is of great practical value.

Where headaches of more or less distinctly periodic type complicate the case, five grains of antipyrin may be added to the alkaline draught before meals. This drug children take well, and it rarely fails to abolish headaches in them.

Regulation of the diet is, of course, of great importance, and the directions given will vary in different cases and at different periods of a case. Some cases are kept up by injudicious feeding, and will be relieved speedily by the prohibition of sweets, pastry, pickles, and tea; here appetite may remain generally good, or may exist as a craving for the very food that must be denied. In other cases there is little appetite, and we have to allow almost anything for which a desire can be created.

In severe cases beef tea and mutton broth, with dry toast, may form for a time the sole form of nourishment. Milk and meat are the next things to be cautiously introduced into the diet.

Later, and in milder cases, the following rules are to be observed: Meals at regular intervals, not too long; nothing between meals; no tea or coffee, no pickles, sauces, or highly seasoned foods. Potatoes should at first be forbidden, and later may be allowed once a day only; care must be taken that they are good and properly cooked. Farinaceous foods and sweets must also be avoided until there is very marked improvement. Milk, eggs, bread and butter, fish and meat of the more digestible varieties, with perhaps porridge, will be available ingredients of the dietary.

It is necessary to see that clothing is sufficiently protective over the abdominal organs and thighs, and not too thick and heavy on the chest. Chills are, no doubt, a frequent cause of relapse. If we have insisted on proper clothing, we can insist also that the child gets out-of-doors into the open air to a generous extent, and is not kept in the house on the plea that "it so easily takes a chill."

We are often asked whether the child should go to school. Our answer must depend on the degree to which the disease is impairing the child's energy. A holiday at the beginning of treatment is almost always necessary, and should last until the child once again shows brightness and activity. Children under eight may always be relieved from school attendance, and probably no child should go to school who is described as eating "no breakfast." It is well to ascertain for oneself, if possible, what the child actually does instead of going to school.

Supervision of diet, clothing, and occupation is of great importance, but drug treatment must supplement this. Occasionally an ill-ventilated or drain-poisoned house may be responsible for the whole mischief.

THE MODERN TREATMENT OF THE MORPHINE, WHISKEY, AND OTHER DRUG ADDICTIONS.

CROWELL in the *Virginia Medical Semi-Monthly* of June 10, 1904, discusses this subject and states in regard to sudden withdrawal that there is an idea prevalent that by the sudden suppression of the morphine there is danger of collapse, heart failure, etc. This is erroneous. Should the heart derive any stimulation from the morphine, the unloading of the intestinal canal and relief of the general congested condition of the system would more than compensate for the stimulus derived from that drug.

The elimination process is begun when the patient enters the hospital. He should have a hot bath. It is well, also, to give some simple diuretic, especially if the kidneys are not acting well. Late in the afternoon give some good brisk purgative; ordinary ones will not answer in these cases. Rather heroic doses must be given to accomplish the desired results, for the system is benumbed by the opiate, and the good results depend considerably upon the completeness of the elimination. The patient should eat neither dinner nor supper.

The purgative employed by the author consists of the following:

℞ Hydrarg. chlorid. mit.,
Extract cascaræ sagradæ, ää gr. x;
Pulv. ipecac., gr. ij;
Strych. nitrat., gr. ⅛ to ½;
Ext. colocynth comp., gr. x;
Aloin, gr. j.

M. et ft. capsulas No. iv. S.: One at 4, 6, 8, and 10 P.M.

The patient may have his accustomed dose of morphine until bedtime, say 10 P.M., when he takes the last capsule, when he is informed that it is his last dose of morphine. From five to eight hours after the last capsule give the patient a hypodermic of nitrate of strychnine, gr. 1-20 to 1-15, and a large dose of some saline cathartic. Repeat the cathartic until the bowels act freely. By this time the aloin and colocynth will have stimulated the lower bowel, the ipecac will have relaxed the intestines and increased the secretions from its mucous surfaces, and the mercury and cascara have stimulated the eliminating glands, and the strychnine have accelerated the intestinal peristalsis.

This alone would fairly well empty the alimentary tract and relieve portal and lymphatic congestion, but there is still work for the saline. Its depleting, flooding action carries into and out of the alimentary and urinary tracts a further residue of the effete material, toward which our attention is now most directed. At this time the patient should have another hot bath. Elimination is not yet complete, but the greatest obstacle has been overcome. As the obstructions have been

removed to a great extent, the heart has little to do but roll the blood along on a level. However, should it coincidentally be weak, support it as in any other emergency. In these cases, after elimination has been completed, it is best not to use strychnine as it may unduly excite peristalsis. Sparteine sulphate is an ideal support in such cases, in doses of from ½ to 2 grains. Now we have avoided the greatest troubles which would naturally occur upon withdrawal without elimination. Most of the other troubles are of mental and nervous origin. The administration of the morphine, or a derivative, would allay these symptoms an indefinite time, but upon the subsiding of the stimulating effects the secondary would predominate, and the patient would be practically in the same pathological condition found in the beginning of the treatment.

With properly selected drugs, the disagreeable nervous and mental phenomena incidental to the completion of the elimination can be avoided, and the process of recovery not interfered with. This time varies from twenty-four to forty-eight hours after the process of elimination has been well begun. At the end of that time the patient usually needs but little if any other medicine, and will remain comparatively comfortable and free from all cravings for the original drug, his appetite and digestion will be good, he will sleep sufficiently, and his stage of convalescence will be very materially shortened as compared with that by the gradual reduction.

Hyoscine hydrobromate is an ideal drug to control the patient during the nervous and mental stage referred to above. It acts as a nerve sedative, produces comfort, and prevents that indescribable feeling incidental to withdrawal of morphine, but has none of the bad effects produced by opiates, and is without any inconvenience to the patient.

The administration should be begun as soon as elimination has been well started up, or as soon thereafter as abstinence symptoms manifest themselves. The dose varies greatly with individuals, ranging from gr. 1-200 to gr. 1-50 hypodermically, at periods varying from thirty minutes to six hours. At first give the smaller doses, and repeat till sleep is induced or the patient is easy and free from all pain. As the dose in one case is no index to that in another, the physician must be present constantly during the hyoscine period to observe the effects of each dose so as to determine each subsequent one. Hyoscine, in proper doses, does not injuriously affect the vital functions nor leave bad after-effects on either the mind or body; therefore it should be given until the full physiological effects are manifested—*i.e.*, to the point of delusions and hallucinations. The patient should be kept thoroughly under its influence for a period of twenty-four hours; then its effects should be allowed to subside. If at this time the patient expresses a desire for morphine, or if he is uncomfortable from abstinence, a full dose of hyoscine should be given, and after its effects have subsided it should be repeated, if necessary, until he expresses himself free from all desire for morphine, and abstinence symptoms do not return.

If elimination has been thorough, it will rarely be necessary to continue hyoscine over twenty-four to thirty-six hours. At the end of this time the patient will remain free from pain and nervousness, will sleep from five to eight hours out of each twenty-four, have no craving for morphine, and in a very short while have an appetite hard to gratify. No other medicine is needed, nor should any be given except in unusual cases, and when given it should have a specific purpose, and the patient should be made to know this purpose, so that he will not think that the medicine is a "tonic" or substitute for the morphine, and that his existence depends upon it. Never send the patient away from the institute taking medicine. Give a hot bath every other day, alternating with cold douches or baths as indicated.

The diet should be light and easily assimilated.

Do not permit alcohol in any form during treatment, and impress the patient with the importance of being a total abstainer after leaving the institute, as alcoholic drinks in any form invite a return to the morphine habit.

As to the time required for treatment, this varies with different individuals. One person may be more thoroughly cured and fortified against relapse in fifteen or twenty days' time than another in thirty or forty.

THE ADMINISTRATION OF HYPNOTICS IN NEURASTHENIA.

With no intention of covering the whole ground of the treatment of that very troublesome symptom of neurasthenia, namely insomnia, LERMITTE in the *Medical Press* of May 18, 1904, points out the results obtained from the use of some drugs which he has constantly employed during the past ten years. Undoubtedly much can be done to relieve this form of insomnia by the rest cure and the Weir Mitchell treatment, but there exist a vast number of patients who either cannot or will not afford the time or money which these somewhat expensive measures involve. Consequently the practitioner, deprived of these means, is compelled either to disregard the sleeplessness of his patients or to resort to the use of some hypnotic, and probably in the majority of his cases he will have to adopt the latter course. If this be granted, then the choice of a hypnotic becomes an important question of almost daily recurrence.

There are some hypnotics which the public have appropriated, and which they are in the habit of taking without medical advice. This we are powerless to prevent, but when the patient seeks our advice it may be laid down as an axiom that one of the worst things we can do is to place in his hands a hypnotic to which he can resort at will. The disastrous results of telling a patient that he may take, for example, tablets of sulphonal when he is unable to sleep must be known to all of us.

The four drugs which the author has used are: (1) A bromide mixture, each drachm of which contains potassium bromide, chloral hydrate, of each gr. xv; tincture of hyoscyamus, min. xx. (2) Chloralamide. (3) Chloretone. (4) Paraldehyde. The results obtained from their administration are given in the following table, which has been compiled on the results obtained in 197 cases, in which the bromide mixture was given in 111 cases, chloralamide in 65, chloretone in 15, and paraldehyde in 6 cases:

Drug.	I.	II.	III.	IV.	V.	VI.
	M.	H. M.	H. M.	M.	H. M.	H. M.
Bromide mix.....	50	4 5	3 15	15	5 45	2 0
Chloralamide.....	45	4 40	2 0	15	5 45	3 0
Chloretone.....	32	5 40	0 55	20	5 55	3 15
Paraldehyde.....	23	5 23	0 35	20	6 5	5 5

Column I. Average time taken to act. II. Average period of induced sleep. III. Maximum time taken to act. IV. Minimum time taken to act. V. Maximum period of sleep. VI. Minimum period of sleep.

Chloralamide has been specially recommended as a hypnotic in neurasthenia, spinal and cardiac cases. It possesses no analgesic effects, and it is said to be unsuitable for the treatment of insomnia in phthisis. With regard to the mode of administration, it is most advantageously given in a weak alcoholic solution, and in doses of from 20 to 50 grains. It is not readily soluble, but, unlike sulphonal, we cannot call heat to our aid, as chloralamide is decomposed by a temperature of 120° F. Taken in the form of a powder, it is slow and uncertain in its action. The author has not observed any unfavorable results from its administration, and, in fact, it seems to be peculiarly devoid of after-effects.

Cappiletti has reported the results obtained by him from the administration of chloretone in twenty-five cases of mental disease, in which the duration of sleep varied from two to five hours. As far as the author has been able to observe its effects, chloretone does not influence the pulse or respiration, nor does it upset the digestive system. He has only seen unpleasant after-effects in one case, in which diplopia, drowsiness, and headache supervened.

Paraldehyde is an extremely objectionable drug to take, having a very pungent ethereal taste and odor. Another drawback to its use is that it imparts an odor of garlic to the breath. It is said to considerably increase the flow of urine, but this statement the author is unable to verify. It has been said that paraldehyde does not produce headache on the day following its administration, but his own impression is that it does, although it is difficult, when treating neurasthenics, to feel certain that the drug is the cause of the headache of which the patient complains. It certainly does not derange the stomach as might be expected from its extremely disagreeable flavor, nor has he seen it produce skin rashes.

If we compare the results obtained from the administration of these four drugs we

arrive at the following conclusions: First, with regard to the average time taken to induce sleep, the bromide mixture acted the slowest (column I). The maximum and minimum times taken to act are seen in columns III and IV. As far as the maximum of induced sleep is concerned, there is but a matter of twenty minutes to choose between the four drugs, paraldehyde winning by that amount, but in the minimum of sleep there is a difference of over three hours between the sleep obtained by the bromide mixture and that from paraldehyde. On the whole the results obtained from the latter drug are very satisfactory, but there will be few of us who will succeed in inducing our patients to continue to take it for any length of time.

THE TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS BY INTRASPINAL ANTISEPTIC INJECTIONS.

The *Medical Record* of June 4, 1904, contains an article by NAMMACK on this subject. He reminds us that at a stated meeting of the Section on Medicine of the New York Academy of Medicine, Dr. Morris Manges gave the detailed histories of three cases which had recovered under the lysol treatment by injection.

Considering that the mortality in different epidemics of cerebrospinal meningitis has varied from 20 to 75 per cent, it is very difficult to draw conclusions from any treatment. A régime in which we may take great pride during one winter's experience with any infectious disease may ride us to a bad fall in succeeding years. A post-mortem study of the brain and spinal cord of a fatal case of spotted fever will also make one skeptical of the value of any alleged specific. And when we read of nine consecutive cases of this disease recovering, without defect of special senses, under inunctions with an ointment containing an organic silver salt, "not begun until grave symptoms appeared," we can only regret that the author's delightful therapeutic optimism is not as infectious as the disease under consideration. Netter's seven cases of recovery—only five complete, however—under repeated lumbar punctures and baths at a temperature of 100° to 104° given for twenty or thirty minutes every third or fourth hour, night and day, make a more rational appeal to our understanding. The value of repeated lumbar punctures has also been emphasized by Koplik. Bela Angyan believes Quincke's puncture to be a rational method, but confines his own treatment to the use of the ice-bag and the subcutaneous injections of bichloride of mercury, made daily along the course of the spinal column. He reports 70 per cent recoveries in twenty-seven cases under this régime. Wentworth is quoted by Osler as never having seen any cases benefited by lumbar punctures, though constantly on the watch for them. Osler himself speaks of benefit as being possible by withdrawal of cerebrospinal fluid, and thinks that in certain severe cases laminectomy and drainage would be justifiable.

In estimating the possibility of beneficial results from intraspinal injections of lysol, we must consider what lysol is, how it may act, and what danger may attend its administration. Lysol, which is obtained by dissolving in fat, and subsequently purifying with the addition of alcohol, the fraction of tar oil which boils between 190° and 200° C., is a brown, oily-looking, clear fluid, with a feeble aromatic, creosote-like odor. It is said to be five times greater in antiseptic power than carbolic acid, and one-eighth as poisonous. Gerlach, of Wiesbaden, found that 2.5-per-cent solutions of lysol diminished the growth upon gelatin of spores of anthrax bacillus in one hour, up to complete arrest of growth in six hours. Much weaker solutions arrested the growth of staphylococcus pyogenes aureus in fifteen minutes. Five-per-cent solutions of lysol reduced the number of colonies in decomposing fluids from about 300 in thirty minutes, to 50 in one hour, and to zero in six hours. Lysol might then reasonably be expected to inhibit the growth of pathogenic microorganisms in the exudate of cerebrospinal meningitis, and the clinical proof of this was furnished by the published report of the results in the Lisbon epidemic.

That lysol is reasonably safe, even in much stronger solutions than had been employed in Lisbon, is also evident from its extensive employment in gynecological and obstetrical practice, where the chances for its absorption from broken surfaces are very favorable. G. Burgl, in the *Münch-*

ener Medicinische Wochenschrift, gives two cases in which young children were fatally poisoned by teaspoonful doses of lysol, given internally by mistake. Burgl also collects 16 other cases of lysol poisoning from the literature. Of these 18 cases, 13 were produced by internal administration, of which 7 recovered and 6 died; 5 by external application, of which 2 recovered and 3 died. The largest internal dose which was followed by recovery was 60 grammes in an adult, and 25 grammes in a four-year-old child.

A COUNTRY DOCTOR'S MEDICINE CASE.

ESCHBACH in the *Iowa Medical Journal* of June 15, 1904, writes an article on this subject. In enumerating the drugs used most, the author does so without reference to their relative importance, but rather as he happens to pick them out from his case.

First, he found calomel in one-quarter grain tablets, a convenient size. For children he gives a half tablet every half-hour, or hour, until free purgation is induced. To adults he gives a whole tablet at the same intervals, and it has helped him in many a case of that protean aspect of alimentary tract disturbance generally described as "biliousness." It commends itself by its tastelessness and will stay down, if anything will stay down. In addition to its purgative action it possesses antiphlogistic and antiseptic powers, which are so much needed in these cases, or in fact in any case of autoinfection from disordered alimentary tract secretion, besides its rôle of an agent that produces "defecation while you wait."

He generally follows its administration in adults with a dose of a saline cathartic.

The next bottle he picks from his case contains the tablets of aloin, strychnia, and belladonna, or sometimes a tablet with the addition of ipecac. As a bowel persuader for more regular and continued use in conditions of chronic constipation it has power very satisfactory to him.

The next bottle contains bismuth subnitrate, which he uses as an antiseptic, protective, sedative, and mild astringent, because of its adherent properties, in cases of irritation and inflammation of the gastric and intestinal tract, simple diarrheas of irritation, chronic bowel complaints of children, in pyrosis, for the vomiting of pregnancy, catarrhal eructations, and, in the absence of his surgical case, as a surgical dressing in wounds.

Next he finds a bottle of Dover's powder, useful as an antipyretic in the febrile conditions of children, as a sedative in the coughs of bronchitis, in the early stages of pneumonia and pleurisy, and in the various forms of diarrhea where a sedative and mild analgesic agent is indicated.

Next he finds potassium bromide used in congestive headaches, in quieting cerebral excitement when not inflammatory in nature, lessening nervousness, a good adjuvant to chloral in insomnia and delirium tremens, a good sedative in chorea, and one of the most reliable remedies in epilepsy, curing a few cases, ameliorating many, and failing always in some.

Side by side with this drug he finds chloral hydrate, the most reliable pure hypnotic yet produced. Always of value in the wakefulness of excitement and nervous irritation and in the wild delirium of the early stages of acute fevers, but to be avoided in the delirium and wakefulness of the dynamic later stages. In puerperal mania, puerperal convulsions, and the convulsions of children it is of undoubted value. In cases where the stomach is extremely irritable, or where from convulsions the patient is unable to swallow, the remedy may be given, properly diluted, per rectum, remembering always that in concentrated solution it will blister.

Then directly opposite to these last depressomotors he finds the excitomotor *par excellence,* strychnia, both the sulphate and the arseniate—a remedy he values more and more with each successive year of practice; a remedy he uses every day, carefully but fearlessly. He uses it as a tonic in all conditions of atony and relaxation, in cases of chorea minor, in many of the paralyses, as a stimulant after abuse from alcohol, as a cardiac stimulant, and as the best respiratory stimulant. In pneumonia it is one of the sheet-anchors. In obstinate pulmonary troubles with dilated right heart it is invaluable. It is of great advantage also as an adjuvant to other drugs in the treatment of the coughs of aged and feeble subjects. In gastric disorders and constipation and

diarrhea, and in the various local paralyses, it gives tone to the system.

Next he finds digitalis, the most powerful and most useful of the cardiac tonics. In simple loss of cardiac muscular power, as in simple dilatation, digitalis is a powerful corrective. In restoring the normal power and force of the cardiac contractions in valvular lesions, it is a most efficient agent. In a heart where from valvular lesion the rhythm is lost, the action irregular and enfeebled, or in other cases irregular and tumultuous, battering its encasement to the terror and discomfort of its owner, how often has he seen digitalis act as a governor on the engine, slowing up its movements, restoring its rhythm and force, and bringing peace and comfort, where before was terror and agony.

He next finds aromatic spirit of ammonia, a most excellent remedy where a quick heart-stimulant is needed. The more sudden and purely functional the heart failure may be the more efficacious it is. In heart failure during anesthesia it is of value hypodermically, but as its action is evanescent in character it needs the addition of more enduring remedies to keep up the good effect of its quick action. It is also of use as a stimulant to expectoration in the bronchial affections of children and in adynamic pulmonary affections. As an antacid in the gastric headaches of acidity it is also useful.

Then we find a bottle of fluid extract of ergot. It is needed in cases of obstetrics, but not so generally used postpartum as formerly. Thus the author never uses it antepartum to stimulate a tardy labor: Because, first, we have learned that a clean, empty uterus usually contracts properly after a normal labor and needs no stimulation from ergot if its cavity is properly emptied and normal bodily conditions prevail to prevent hemorrhage. Secondly, it is still less needed antepartum to bring on pains of labor for expulsion, as the pains it induces are not properly intermittent, but more or less tetanic, violent, and constant, endangering the life of the child; because the violent and prolonged contractions must necessarily interfere with the circulation of the placenta and therefore with the respiration of the fetus, and a still-born child is often the result of antepartum administration of ergot. Quinine or strychnia will give a proper uterine stimulation when needed. But ergot is often needed for postpartum hemorrhage from uterine atony, and when needed is invaluable. The author does not pretend to give all the possible uses of ergot, such as its effect on uterine fibroids till such time as operative work will be permitted, or enlarged prostates in old men where its physiological action points to its use, and there are clinical data to point to its efficacy, but its use, in connection with obstetrics, calls for a place in every physician's case.

A bottle of chloroform for use in convulsions of children and adults, puerperal eclampsia, and wherever a general anesthetic is required on short notice, should be kept on hand. No medicine case should be without it.

BROMETONE.

The *Medical and Surgical Monitor* of June 15, 1904, contains an editorial article in which the following practical information is given about brometone:

The writer refrains from entering into the detail of its employment in individual cases, as this should be looked upon in every sense as a preliminary report, and a summary will therefore suffice at present. His conclusions, based upon the use of brometone in a series of twenty unchosen cases, is as follows:

1. It acts as an excellent sedative in mild conditions of excitation and insomnia.

2. It gives good service in allaying symptoms of so-called narcotic abstinence.

3. It is a most useful sedative in the nervous affections of children and adults, as it replaces the usual large doses of bromides by very small doses. Two grains thrice daily in children of six years act excellently in chorea and epilepsy.

4. In simple and hysterical nervousness it yields good results.

5. In about 60 per cent of cases it was of service to ameliorate the frequency and severity of attacks in epilepsy from all sources, replacing the bromides in dosage of about one-fifth or one-fourth the latter, but in no case did brometone effect a cure of the underlying epilepsy.

6. It exerts only a feeble influence in conditions of great cerebral hyperemia with excitement and motor activity.

7. It should be used cautiously in doses not exceeding 25 grains daily, as in persons predisposed by idiosyncrasy it produces dizziness, vertigo, anorexia, and mental hebetude, all of which symptoms disappear upon discontinuance of its use.

While therefore brometone has some side effects of a disagreeable nature—as was to be expected from its composition—it seems to occupy a worthy place as a mild sedative, having the advantage of small dosage and convenient administration in capsules or simple syrup. The combination of brometone and chloretone has been suggested to the chemist in the belief that it will prove of value in conditions of nervous irritability associated with pain, nausea and vomiting, notably in seasickness and after the use of an anesthetic. It should be useful, it seems, as a prophylactic to the nausea of chloroform or ether narcosis employed prior to the operation.

PRESENT-DAY TREATMENT OF TUBERCULOSIS.

The *Iowa Medical Journal* of June 15, 1904, contains an article by KIME on this subject. He quotes Hillier, a well known English authority: "Ocean voyages, high altitude, and dry climates have all been eulogized in turn as remedies for phthisis." The writer has had phthisical patients under his care and observation for considerable periods of time under all these conditions, and the conclusion he has come to is that the benefit derived in every case is chiefly dependent on the extent to which the patient is constantly kept in pure air.

The medical history of a case of tuberculosis usually is:

1. A course of patent medicines prescribed by himself, the druggist, or by the patient's friends.

2. A course of medicine under the physician, consisting of creosote, guaiacol, cod-liver oil, maltine, tonics, etc.

3. A course of tuberculin, lymph, copper, or other specific for revenue only.

It is difficult to say which of these courses is most harmful to the patient. All lull him into unsuspecting belief that something is being done, and that he is getting better, while his chances for recovery are daily slipping away from him.

While it is certain that no medicine or lymph or other substance has any known value whatever on the tuberculous process, drugs have a legitimate place in this disease. Intercurrent symptoms arise and occasionally call for treatment. If the cough is excessive, night sweats severe, diarrhea exhausting, or other like troubles arise, remedies suitable for their relief are indicated. But that permanent relief may come from drugs is an error no less grave than that the principles of Christian science applied might be fraught with results for good.

Time is lost in any attempt to treat these cases with medicines, and time is the essential factor which determines the chance of recovery in this disease.

In this connection the writer quotes from the report of the Tuberculosis Committee of the Charity Organization Society of the City of New York, which is composed of many of the best phthisiologists in this country. It says: *"Resolved,* That a public announcement be made that it is the unanimous opinion of the members of this committee that there exists no specific medicine for the treatment of pulmonary tuberculosis, and that no cure can be expected from any kind of medicine or method except the regularly accepted treatment, which relies mainly upon pure air and nourishing food."

What then shall we do with the consumptive patient?

First we must recognize his condition much earlier than has been done by many in the past. It is not unusual to see these patients in almost their final stages without a diagnosis having been made. Such cases practically all die no matter where they go or what they do. It is exceedingly important that they be recognized in their incipient stages. Time must not then be lost in treatment with medicines. These do no good, while each day the patient approaches near to that point where recovery is impossible.

Of all the factors in the treatment of tuberculosis fresh air and sunshine stand first. Trudeau put it, fresh air 50 per cent, nutritious diet 25 per cent, rest 25 per cent.

Medical supervision, constant, painstaking, and with the firmness of military discipline, is necessary to carry out the conditions essential to the proper treatment of this disease. This may be found only in the modern sanatorium for tuberculosis.

THE TREATMENT OF HYPERPYREXIA IN MEASLES AND SCARLET FEVER BY BATHS OF INCREASING TEMPERATURE.

BERG in an article contributed to the *Medical Record* of July 2, 1904, reminds us that the usual methods for reducing temperature in infectious eruptive fevers, employed also in measles and scarlet fever, are cold or cool baths, like the Brand baths used in typhoid, the cold or cool sponge baths, the cold pack, and antipyretic drugs. The last may be dismissed with an interdiction, as no knowledge exists of any of the acute infectious diseases in which these drugs are warranted for the reduction of hyperpyrexia. The reasons for this are for the most part well known and need not be entered upon here. As far as the use of the other three methods is concerned—baths, sponge baths, and the cold pack—one fact is true with reference to all three of these methods of reducing hyperpyrexia, when applied to measles and to scarlet fever, and that is that no such reduction of temperature, either in amplitude or in duration, as is obtained from these methods in the high temperature of other diseases, such as typhoid or pneumonia, takes place from their use in the pyrexia of measles and scarlet fever. This is easily accounted for. In both of these eruptive diseases, cold, whether in the shape of baths, sponging, or packs, has a different effect upon the skin which is the seat of an exanthema, from that which it has in diseases in which the skin is in a normal condition. The subcutaneous swelling and infiltration which is part of the eruption causes pressure upon the cutaneous capillaries and their nerves. These capillaries do not undergo the primary contraction under the influence of cold which occurs when cold is applied to healthy skin, nor does the secondary dilatation which follows the primary instantaneous contraction where the skin is normal occur in skin which is the seat of a measles or scarlatinal eruption. There is, therefore, not that interchange of cooled blood from the periphery and warm blood from the center which is so necessary a condition to the reduction of temperature by cold baths or packs. On the contrary, it has been observed that these agents when applied to a brilliant scarlatina cause a red rash to become violet and almost hemorrhagic and spotted in character, owing to stasis of the cutaneous circulation. For the same reason cold baths and cold packs in measles and scarlet fever inhibit perspiration both primarily and secondarily.

The writer refers to the importance of the sweat glands in aiding the skin to excrete from the body the toxic materials which are the essence of the disease in measles and scarlet fever, and even believes that the eruption itself is the conservative manifestation of the eliminative activity on the part of the skin; so that any method of reducing temperature which inhibits the eliminative and excretory functions of the skin defeats the most logical indication for therapy that we have in the acute infectious eruptive diseases. A gentle perspiration during the course of the eruptive stage of measles and scarlet fever is desirable, and all therapy should be directed toward its encouragement. Whenever a case of measles or scarlet fever with high temperature and other toxic phenomena shows but a scant and incomplete eruption, the author practices and advises the giving of a warm bath followed by a dry pack. The perspiration which ensues is generally successful in bringing out the eruption, while at the same time the temperature will sink materially and the curve be completed on a lower plane.

This is only done if with hyperpyrexia the eruption is incomplete. To reduce abnormally high temperatures (above 104°) in uncomplicated measles or scarlet fever, the author has used for some years the following method: The patient is placed in a bath with the water at a temperature of 80° F.; at the end of five or ten minutes, depending upon the case, the temperature of the water is raised to 90° by the addition of warm water. A bath at 80° for a fever patient with temperature of 105° is a cooling bath, and yet not cool enough to produce the evil effects upon the capillaries of the skin as above re-

ferred to. The subsequent raising of the temperature of the water ten degrees for ten minutes is equivalent to giving a warm bath after the cool one to the patient who has become accustomed to the water at 80°. Whatever ill effect the cool bath at 80° may have had upon the cutaneous capillaries and nerves is more than counterbalanced, and yet the temperature of the bath is still at 90°—much lower than that of the skin. The patient, when taken from the bath, is wrapped lightly in a sheet and covered lightly by a thin blanket. The temperature will be found to have declined from one and one-half to three or more degrees, and the decline persists longer than from any other method that the author has tried in these diseases. Moreover, the eruption is not diminished, the pulse is improved, sleep generally induced, and a gentle perspiration covers the whole body.

Practically one point of importance must not be forgotten. When the warm water is added it must be poured into the bottom of the bath tub. The reason for this is that if the warm water is poured on the top, it lies over the cool water, unless imperfectly mingled mechanically by the nurse. The patient would thus have the lower part of his body bathed in cold water and the upper part in warm or hot water. For this purpose the author has used in private houses a tin funnel with a piece of rubber hose long enough to reach to the bottom of the tub, and thus the warm water is delivered at the bottom of the bath. It then rises by its own lightness, as compared with the cold water, and is disseminated throughout the bath. For hospitals, a tub with a false fenestrated bottom can be made, and a permanent tin tube passed along one of the sides to the bottom, to accomplish more easily the same purpose. The patient should not be rubbed after such a bath, both because the warm additional water accomplishes all or more than the rubbing in the Brand bath, and for the further reason that friction is detrimental to the inflamed skin, producing a pseudodesquamation long before the subjacent skin is ready to cast off its inflamed covering. Such desquamated areas of skin are practically superficial ulcers.

Lesser degrees of hyperpyrexia are treated by sponging with water at 70°, to which one-third ordinary alcohol has been added. The alcohol in these cases acts the part of the added warm water in the bath, and counteracts the ill effects of the cold sponging upon the capillaries and nerves of the skin. It is unnecessary to again repeat the injunction against the use of friction upon the skin. On the contrary, the sponging should be liberally done with a large soft sponge, only the excess of water absorbed by patting the skin with a soft towel and the patient lightly covered as after a bath. Of these two methods the most efficacious in very high temperatures of scarlet fever and measles has been the tub, as above described.

ALBUMINURIC RETINITIS.

Fox in an article in the *New York Medical Journal* of June 25, 1904, gives the following advice as to the treatment of this state:

It is necessary, as soon as the condition is recognized, to place the patient under the care of a clinician especially skilled in the management of such cases, who should be informed of the nature of the disease from an ophthalmic standpoint. In the event of this being impossible, general treatment, such as is indicated in nephritis, should be begun. The attendant anemia will indicate the use of iron, but its constipating effect will necessitate considerable judgment, in order to select the least harmful preparation. In the author's opinion Basham's mixture is the most applicable, and should be given, one to two teaspoonfuls, every three hours. Strychnine sulphate, in doses of 1/60 to 1/30 of a grain, three times daily, may be advised. Gray powder (mercury with chalk) one to two grains, and gallic acid ten to fifteen grains, administered three times daily, are beneficial in absorbing the hemorrhages and exudate. Free purgation and diaphoresis are especially advantageous. The diet should be such as to exclude foods rich in albumen, such as peas, beans, and potatoes, lamb, beef, mutton, pork, veal, fried fish, gravies, ice cream, pastry, cakes, coffee, and spirituous or malt liquors. Woolen clothing should be worn the year round, and the patient should be removed to a warm and dry climate, if possible. Edebohls, of New York, has made the assertion that removal of the capsule of th

kidney is of great value as a curative measure in Bright's disease. Gradle, of Chicago, reports one case with marked ocular changes in which bilateral decapsulation was performed, and was followed by marked improvement in vision within a comparatively short period.

Locally very little can be done. Rest of the eyes is important, and the refraction should be carefully examined and corrected. The instillation of eserine is advised by some observers, but it serves only to lessen the irritability of the retina.

ON THE USE OF ALCOHOL IN CASES OF PNEUMONIA.

In a suggestive and carefully reasoned paper on pneumonia, read before the Liverpool Medical Institution by Dr. JOHN HAY, some strong views are expressed against the routine use of alcohol in cases of threatened cardiac failure during the course of that disease, supported by statistics and tables of somewhat startling character. He found that in considering a group of 150 cases, 47 of which were treated by himself without administration of alcohol, while the remaining 103 were treated by his colleagues, alcohol being given when the usually recognized indications for its administration arose, the mortality in the former group (those untreated by alcohol) was 16 per cent less than that in the latter; or, eliminating the cases admitted moribund from both groups, there was a difference of 15 per cent in favor of the cases treated without alcohol.

Dr. Hay states that he has taken great care to eliminate every source of error, and we must accept his figures as showing the difference he claims. At the same time there would seem to us to be one or two factors requiring elucidation, leaving out of consideration the smaller number of cases dealt with in the former group. First, although the average age of the two groups of cases is practically identical, it would have been of interest to compare the age mortality of the two groups in decade periods. Again, considering the group of 103 cases treated by his colleagues with alcohol there would seem to be three possibilities: first, that all the patients seen by them were treated with alcohol; secondly, that the cases not treated by alcohol were excluded, which would seem to be negatived by the statement that no selection was made; or thirdly, that this group includes cases to which no alcohol was given, in which case it would seem of interest to know what proportion these form of the total. These are points which require elucidation before the absolute value of the figures given can be made out.

Dr. Hay quotes the currently received views of the pharmacological actions of alcohol in support of his conclusions, viz., that it dilates the peripheral vessels and lowers the blood-pressure, exerting no direct action upon the heart itself except to enfeeble it in large doses. At the same time examples are not wanting of drugs which seem to exert actions in disease almost in defiance, so to speak, of their pharmacological actions. Strychnine itself, which Dr. Hay so rightly commends as "a good stimulating cardiac tonic," is a case in point, for according to many pharmacologists strychnine has no action upon the heart, producing its effects on the vascular system entirely through the vasomotor center. We hold no brief for the use of alcohol in pneumonia; in fact, there is little doubt that it is frequently administered in too large amounts and too early in the disease. At the same time we cannot but feel that with so large a variation as 15 or 16 per cent in so relatively small a group of cases the difference may be due to more than the one variant, especially when we remember that some statistics in other diseases—notably typhoid fever—certainly seem in favor of the use of alcohol. Dr. Hay's statistics are, however, a valuable contribution to a debatable question, and we may express the hope that his work will direct attention to the matter and stimulate others to make observations.—*Lancet*, June 11, 1904.

TREATMENT OF SUPPURATING ULCERS OF THE CORNEA.

TAYLOR writes in the *Pennsylvania Medical Journal* for June, 1904, an article in which he gives the following advice: He asserts that we may say of suppurating ulcers of the cornea that the majority of them never should have occurred. The inference from this would

be: the best time to treat corneal ulcers is before you have them. Many of us are familiar with a picture that might be drawn by any one engaged in ophthalmic practice. There enters your office a patient with one eye covered, or partly covered, with a dirty rag or handkerchief, not fit even to cover an ulcer of the foot, much less so delicate a structure as the eye. You remove the covering, again wash your hands, and examine the eye, finding the conjunctiva intensely injected, the eye painful and sensitive to light, and a suppurating ulcer with irregular excavated yellowish edges occupying some considerable portion of the cornea.

Inquiry reveals the fact that a week ago he was struck in the eye with a piece of coal, a stick, or some other missile, and that either nothing whatever has been done for the wound, or that it has been treated, or maltreated rather, by some home remedies or by some famous eye drops bought from a neighboring drug store. Inwardly wishing that the patient had seen fit to consult some one else, you proceed to do what you can for him. These are always serious cases, and no one is fond of treating them, though we often succeed in getting brilliant results under most adverse circumstances.

Now what should have been done with this patient in the first place had he only had sense enough to place himself under medical treatment when his accident first occurred? Those of us who live in mining or manufacturing regions find occasion to treat many injuries to the eye, and among them many superficial cuts and abrasions of the cornea, and these are not dreaded by the oculist if he only sees them early, and has the opportunity to care for them at once. The same general principles apply that apply to any wound. Perfect cleanliness and perfect quiet are needed to allow nature to restore the injured member. This can be best accomplished by flushing the eye with a boric acid solution or mild bichloride, by instilling a few drops of a one-per-cent solution of atropine, and applying a sterile compress bandage. The latter serves a twofold purpose: first, if properly applied it keeps the eye quiet and prevents the irritation which comes from the rubbing of the eyelid over the wounded cornea; and secondly, it serves to protect the eye from external infection.

The patient should be given a wash of boric acid and atropine to use at home, and should be cautioned as to the necessity for the utmost care in cleanliness in handling and treating the eye. If these lesser corneal wounds were treated at once in the simple manner just detailed there would be very few suppurating corneal ulcers. It is this simple prophylactic treatment that should be borne in mind by those not especially engaged in eye work, but who as general practitioners are often first consulted when the injury occurs.

But too often these injuries are neglected entirely and left exposed to infection from without until the suppurating process is well under way. What shall we do for them now? Very many remedies have been tried, and different ones have been found useful in the hands of different ophthalmologists. There is one remedy of more value than all others in arresting the suppurating process, and to this the author gives preference. He refers to the galvanocautery. When a patient presents himself with a bad-looking suppurating ulcer, its floor covered with dirty-yellowish exudation, the edges of the ulcer showing a tendency to extend, the eye generally red and painful, and with hypopyon commencing in the anterior chamber, that ulcer ought to be cauterized thoroughly. A thorough flushing with boric acid solution, instillation of cocaine, and a drop of fluorescine to mark the boundaries of the ulcer should first be used.

Then, with the electrode at red heat, the floor and edges should be thoroughly touched. The author does not believe in opening the chamber with the cautery as advocated by many, as he does not think it necessary, though he had two excellent results with accidental puncture. The eye should now be bandaged and atropine and mild antiseptic solution used three or four times daily.

The author does not mean by this that all ulcers should be treated with the galvanocautery. If seen when still small, even if the suppurating process has commenced, he frequently treats them by application of silver nitrate on cotton

probe to the entire surface of the ulcer as proposed by Dr. Callan some years ago. Sometimes curetting is necessary before applying the silver nitrate. He then gives the patient a solution of toluidin blue and atropine, uses the compress bandage, and enjoins perfect cleanliness.

THE RESULT OF A YEAR'S OBSERVATION OF GASTROPTOSIS.

STEELE writes in the *Pennsylvania Medical Journal* for June, 1904, on the results reached by treating this condition. He says that the question whether external mechanical support of the abdomen in gastroptosis tends to restore the stomach to its normal condition has grown to be of special interest since Beyea introduced his operation of shortening the gastro-hepatic ligament. Great confidence is felt by the writer in surgical interference in certain cases. However, the question can best be settled by a comparison of both methods of treatment after sufficient time has elapsed to thoroughly test each of them. Hence the inducement to publish this paper.

In nine cases the stomach was reëxamined by inflation after an average interval of fourteen months. During this time the external support, furnished by an abdominal binder, was constantly applied, and the results of the second examination in each case showed that the stomach was in exactly the same position at the end of the period as it was when the patient first came under observation. That is to say, the stomach was not permanently restored to its normal position in any case. Twenty of the twenty-eight patients wore a belt throughout the year. They invariably derived great relief from its use, being free from the sense of dragging and lack of support, and after the patient had once become accustomed to the abdominal binder it could not be discarded without nausea and return of the original symptoms.

In about one-fourth of the series no cause could be found for the anacidity and symptoms of gastric indigestion except gastroptosis. All of the patients improved and are now practically free from symptoms. The treatment employed was regulation of diet, mechanical support, the use of hydrochloric acid and nux vomica, and an occasional lavage. In one case the only symptom complained of was car sickness, which was entirely relieved by a belt. Here gastroptosis may be held directly responsible for the production of symptoms. In the remaining cases, amounting to three-fourths of the total number, the gastric disorder could be distinctly traced to neurasthenia, motor insufficiency in dilatation, chronic constipation, or passive digestion. Gastroptosis in these cases is probably a complication and a link in the vicious circle. That it is of much importance is indicated by the great relief that mechanical support afforded.

A number of cases have been examined and reëxamined after a year of constant wearing of the belt, and in none of them was the stomach restored to its normal position. External mechanical support furnishes such great relief in the majority of cases of downward displacement of the pylorus that it must be considered a very valuable help in the treatment of the condition.

In those cases in which the gastric symptoms are caused by uncomplicated downward displacement of the stomach, the results of medical treatment have been very gratifying. The fight was a long one, but all of the patients are practically free from gastric symptoms after a year. In other cases the prognosis depends on the dominant factor in the patient's condition, and this of course varies in each case.

BORIC ACID IN FOOD.

The Department of Agriculture has just issued a report giving the result of the experiments made last year in the influence of boric acid and borax on digestion and health. During a period of six months twelve young men submitted themselves to the observation of experts and gave a test of the effect of natural and preserved foods upon the system. The trial seems to have demonstrated that, while the human body can endure considerable quantities of boric acid in food without serious results, yet the steady absorption of the drug is unhealthful, and especially likely to work injury to persons of a delicate constitution. The report shows that boric acid taken in food is

eliminated from the system almost entirely by the kidneys, and that, as the maximum traces of it are found only three days after administration, the drug meanwhile is present in the circulation. It is not shown that the boric acid has any directly deleterious effect upon the kidneys, but anybody who realizes the prevalence of kidney disease under the unnatural strain upon those organs of the common mode of life, with its nervous tension and overeating, will feel it unwise to subject them unnecessarily to the work of eliminating from the body a chemical product which has no natural place there and with which they should not be called upon to deal. The department further finds that the continued use of boric acid, even in small quantities which produce no immediate palpable effects and are not noticeable to the taste, results in loss of appetite, bad feeling, fulness in the head, and distress in the stomach. Persons regularly using borated food tend to lose weight, and analysis shows that a smaller proportion of borated than of natural food is digested and made available for the body's uses.

The report is thoroughly conservative. It makes no sensational charges that food is poisoned by borax. It admits that articles of only occasional use may be preserved with the aid of boric acid without harm, and it concedes that meats shipped raw and not kept too long may without bad results receive an external coating of preservative, which excludes germs of decomposition without penetrating far beneath the surface. Nevertheless, it is emphatic in its warning against the habitual use of preserved foods, and in its demand that such foods be honestly labeled that the consumer may know what he is getting. This phase of the subject is particularly important. The consumer is now at the mercy of the producer. If he is an invalid, he may be seriously injured by borated foods which he buys, supposing them to be pure. He should have a chance to know whether he is getting natural or preserved food. If his constitution will stand the latter, well and good. If it will not, what is to him a poison should not be secretly and fraudulently administered to him. It may be that for the preservation of some articles boric acid is necessary, or at least preferable to the chemical conditions which would be developed without antiseptic properties.

The burden of proof on that point, however, rests upon the producer. He should be compelled to meet this obligation, to specify his use of boric acid and commend it to favor, and not allowed to sell goods under false pretenses. The report says: "It is undoubtedly true that no patent effects may be produced in persons of good health by the occasional use of preservatives of this kind in small quantities, but the young, the debilitated, and the sick must not be forgotten, and the safe rule to follow is to exclude these preservatives from foods for general consumption." This can only be done by compelling publicity in the use of the preservatives. Otherwise, in spite of all precautions, those who would be injured will unwittingly use them to the detriment of their health.—*Medical News,* July 2, 1904.

THE TREATMENT OF TUBERCULOSIS OF THE SKIN.

To *American Medicine* of July 2, 1904, HARTZELL contributes an article in which he says that the constitutional treatment of tuberculosis of the skin differs in no respect from that of tuberculosis of other tissues. The patient should have an abundance of fresh air, and to insure this he should pass a large part of his time outdoors. He should have a superabundance of highly nutritious, easily digested food; eggs and milk should form a large part of his diet. If it does not interfere with his digestion, he should take cod-liver oil; and the pure oil is far superior to any mixture, both as to palatability and therapeutic effect.

In lupus vulgaris, two local remedies are of especial value, viz., concentrated light employed after the method of Finsen, and the Roentgen ray. Although it is but a short time since the introduction of these agents, the evidence of their great usefulness is already overwhelming. The Finsen light is preferable when the area of disease is moderate in extent, but the length of time required for the exposures almost prohibits its use in very extensive cases. The Roentgen ray acts much more rapidly than light, and a much larger surface may be treated at each sitting; it is, therefore, preferable in cases

in which large areas are involved. When there is but a single patch of disease, of moderate extent, favorably situated, complete excision with the subsequent transplantation of a flap of sound skin is the most speedy method of treatment.

In verrucose tuberculosis, curettement followed by cauterization with caustic potash, or the application of a strong pyrogallol plaster, is usually followed by very satisfactory results. If the patient objects to the scraping and cauterization, the Roentgen rays may be successfully employed.

Lichen scrofulosorum responds promptly to treatment with cod-liver oil given internally and applied locally. Crocker finds that inunctions with vaselin are quite as effective as the cod-liver oil, and much less disagreeable.

Scrofulous ulcers should be made and kept as nearly aseptic as possible, and some stimulating ointment, preferably some one of the mercurial ointments, applied twice or three times a day. The application of dry powder of iodoform, europhen, aristol, or other iodine compounds is frequently of decided value.

THE RESULTS OF TREATMENT OF TWO HUNDRED CASES OF ACUTE LOBAR PNEUMONIA.

In the *Lancet* of June 11, 1904, HAY states that the following treatment was carried out in this large number of cases:

The drugs used in order to prevent or to counteract cardiac failure were practically four: strychnine, digitalis, caffeine, and ammonium carbonate. Strychnine and caffeine are recognized as good stimulating cardiac tonics. Digitalis is a more purely cardiac tonic. In the administration of strychnine one must be careful neither to begin too soon nor to give too large doses, for it must be remembered that there is only a certain definite reserve force in each heart that can be called upon. The main object must therefore be to spare the heart from every strain and only to use cardiac stimulants when absolutely necessary. Both strychnine and digitalis the author prefers to administer hypodermically, and when given in sufficient doses they will obtain from the heart a large proportion of its possible energy. In alcoholic cases more especially it is advisable to give digitalis hypodermically because, as O. T. Osborne points out, digitalis is absorbed with great difficulty from the stomach in such patients. Digitalis slows the heart and simultaneously increases the force of its contraction, tending to raise the blood-pressure by contracting the peripheral vessels.

As an example of the value of digitalis, in contradistinction to alcohol, in its action on the heart Sir Samuel Wilks relates a very suggestive case. A young lady, for many years the subject of mitral disease, had been for some time growing worse, until at last she "took to her bed," and he was asked to see her. "It was a matter of formality, as she was thought to be dying. She was lying in bed gasping, with a fluttering heart and an almost imperceptible, irregular pulse, and semiconscious. She was being plied with brandy in order to keep her alive. The two medical men who were with her did not perceive that they were poisoning her, but nevertheless assented to the author's strong wish to stop the spirit. This was done, and 15 drops of tincture of digitalis was given every hour for a short time. After a few doses the frequency of the pulse was lessened. She breathed better and was more sensible. She then continued the remedy to a less amount. She rapidly improved."

Strychnine stimulates the cardiac center, cardiac ganglia and nerves, and also in a marked degree the respiratory center. One-fiftieth of a grain is given every four hours if any signs of cardiac exhaustion are observed, and, if necessary, this dose is increased to 1/25 of a grain. Both camphor and musk, more especially the latter, must be looked upon as valuable cardiac stimulants, but the cost of musk is so great that it is impossible to make use of it. If given at all, doses of from five to ten grains should be administered every few hours. Ammonium carbonate has been found chiefly of use in those cases associated with bronchitis. It should be administered in large doses—ten grains every four hours, and occasional doses of 20 or 30 grains in addition. It rarely produces emesis and is usually followed by very free expectoration. The author first became convinced of the value of these large doses as an expectorant and cardiac stimulant in the case of a woman suffering from marked emphysema and bronchitis. She was propped up in bed,

breathing rapidly, tossing about, distressed, and very cyanosed. Her heart was dilated and her pulse was irregular. Her lungs were full of râles and rhonchi. For some days she had been taking an ordinary expectorant mixture with very little benefit. A half-drachm dose of ammonium carbonate was ordered, to be repeated in an hour if it did not produce emesis. Following the second dose she began to expectorate large quantities of muco-pus and was greatly relieved. Since then the author has frequently tried these large doses and generally found marked benefit follow their exhibition, not only in cases of bronchitis and emphysema, but also in pneumonia associated with bronchitis in which the expectoration tends to be profuse and of a bronchitic character. Caffeine can be administered either as strong coffee or as the citrate. It acts as a stimulant cardiac tonic, as a nervine tonic, and also as a cerebral stimulant. This latter property would make one hesitate to give it when the insomnia is troublesome. Its action on the kidneys may help to eliminate toxic matters.

There is one form of treatment to which the author refers in conclusion—namely, the application of ice-bags to the abdomen, so strongly recommended by Dr. Barr. These were applied in some twenty cases and with benefit. The cold applied to the abdomen steadies the temperature, and by acting on the splanchnic area improves the tension and volume of the pulse. It increases the depth of the respirations, and thus greatly assists the heart by increasing the force of the respiratory pump. It also, according to some authorities, distinctly increases the value of digitalis in pneumonia by tending to bring the circulation into equilibrium.

If one determines to use the ice-bag it is most important that it should be firmly fixed, otherwise it will tend to slip down on the groin and be a source of great discomfort. The sensitive groins should be protected with wool or lint. A medical man, a member of the Liverpool Medical Institution, has mentioned to the writer the comfort and benefit which he received from the ice-bag during an attack of pneumonia, and he also referred to the discomfort which he experienced until his groins had been protected and the ice-bag firmly fixed in its correct position.

THE FEEDING AND CARE OF CHILDREN AFTER THE FIRST YEAR.

To the *Archives of Pediatrics* for June, 1904, FREEMAN contributes a paper in which he gives sound advice. He first asks the question, What indications have we at the beginning of the second year for any change of food from a simple milk diet? There is a demand from the mother for other food, often for meat. There is the frequently quoted opinion that as soon as a baby has its teeth it should be given something to chew. This claim may, however, be well answered by the statement that the six incisor teeth a child usually has at the beginning of the second year are not chewing teeth, and it is not until six or nine months later that a child is supplied with teeth intended to grind food into small particles. At fourteen months a child usually has only its eight incisor teeth, while at eighteen months it has only four molars. It is only at eighteen months then that a child with normal dentition is able properly to grind food. It must be agreed that there is but little indication for a change in food, and that a simple milk diet may often be continued into the second year with advantage. There are, however, certain benefits in an enlarged dietary at this time. A child must be gradually accustomed to take its food from a spoon instead of from a bottle preparatory to taking solid food, and again at this time many children suffer from constipation, which may be somewhat relieved by a change in diet.

In choosing the first food to be added to the milk diet the matter of its nutritive value need not be particularly considered, since the 40 or 50 ounces of cow's milk already fed furnishes sufficient nourishment. The food then should be such as can be eaten with a spoon, and that will not displace the milk but render it more, rather than less, digestible. This requirement seems best filled by one of the many cereals, a finely ground or strained cereal thoroughly cooked being used first. Thus about 4 ounces of a thick strained oatmeal gruel or a wheat meal may be added to the midday meal, and half an ounce of orange juice may be given also. It is a safe precaution to add half an ounce of orange juice daily to the dietary of all children of six months or over. The die

tary at twelve months will consist then of 8 ounces of milk (pasteurized) at 6 and 10 A.M., and 1, 5, and 9 P.M., to which is added at one o'clock 4 ounces of gruel and half an ounce of orange juice.

DIET OF THE SECOND YEAR.

	6 A.M.	10 A.M.	1 P.M.	5 P.M.	9 P.M.
At 12 months.	8–10 ounces milk.	8–10 ounces milk.	4 ounces gruel; 8 ounces milk; ½ ounce orange juice.	8–10 ounces milk.	8–10 ounces milk.
At 15 months.	8 ounces milk; 6 ounces gruel.	8 ounces milk.	Soft-boiled egg; 8 ounces milk; ½ ounce orange juice.	8 ounces milk; 6 ounces gruel.	8 ounces milk.
At 18 months.	8 ounces milk; 6 ounces gruel.	8 ounces milk.	4 ounces clear soup; soft-boiled egg; 8 ounces milk; ½ ounce orange juice; bread and butter.	8 ounces milk; 6 ounces gruel.	8 ounces milk.
At 21 months.	8 ounces milk; 6 ounces gruel; soft-boiled egg; bread and butter.	8 ounces milk.	6 ounces clear soup; ½–1 ounce scraped beef; ½ ounce orange juice; bread and butter.	8 ounces milk; 6 ounces gruel; bread and butter.	8 ounces milk.

This diet may be continued for some time, but usually by the fifteenth month a soft-boiled egg may be given each day with the one o'clock feeding. This furnishes a nourishing, easily digested proteid food. The cereal is now transferred to the 6 A.M. and 5. P.M. feedings, and it may be a more coarsely ground cereal. The child thus gets three meals each day with two additional fedings of an 8-ounce bottle of milk each at 10 A.M. and 9 P.M.

For the next six months no change need usually be made in this dietary, except, perhaps, the addition of 4 ounces of clear soup, beef, mutton, or chicken, to the midday meal, with a slice of dry bread and butter. It may be noted that no mention has been made of beef juice which is often given at this time. Beef juice should not form a part of the dietary of any normal healthy child, for it has scarcely any food value, as it is composed for the most part of extractives and water. It is, however, a good tonic and a useful addition to the dietary of a child that has a poor appetite or is anemic or convalescing from some acute disease. Its use should be reserved to cases that furnish some such indication.

At about the twenty-first month some meat may usually be added to the midday meal with advantage. It should be given first in moderate amount and in the most digestible form. Scraped beef from the inner portion of a rare broiled steak which is free from fat is the best form, and a heaping tablespoonful may be given at first, and the amount soon doubled. When this is given with bread the child should be instructed systematically how to chew. At this time the soup may be increased to 6 ounces and the milk dropped, for as a rule milk is not well digested when given at meals with meat. The amount of meat given should be carefully restricted, as many children, especially pale children, are often given too much meat. This addition of meat then completes the dietary for the second year, and the articles of food mentioned are all that should ordinarily be given at this period.

EYE-STRAIN.

The *Edinburgh Medical Journal* for July, 1904, in referring to eye-strain as a factor in disease and its relief by glasses, gives vent to the following sensible views apropos of some American authors who believe that this cause may produce almost any set of symptoms. It says that to a thoughtful mind a curious feature of medicine, and doubtless of other sciences also, is the effect of fashion and habit in reference to methods of treatment, to theories of disease, and what not. Some one discovers a principle which may prove, on investigation, to be of far wider application than at first was dreamed of, or suggests a method of treatment for some malady, possibly arrived at empirically or even accidentally. Its use is extended to other diseases, in a blundering fashion sometimes, after careful reasoning at others; and it is found by its means that two diseases, not hitherto supposed to be distinct, are in reality quite separate entities, reacting in diverse manners to the new method; or again, two separate and dissimilar diseases are found, by their analogous reac-

tion, to have really one common basis. That which was simple becomes complex; that which was complex becomes simple.

At a later stage the theory or the drug, having been tested for all forms of evil, has been "boomed," as the phrase is, in season and out of season, having been applied here, there, and everywhere, is found to have an area of suitable application quite other than the promised "Promised Land" of the visionary's speculation visible from the Pisgah of inexperience. Then, to change the metaphor, the reaction comes, and the theory or agent is discredited and looked upon more and more coldly; and a theory of ailment, or a means of cure, which within proper limits is of real value, is totally relegated to limbo and black night, because it has failed to fulfil the extravagant and unreasonable hopes which were at first embraced regarding it.

These thoughts were suggested to the writer by noting what is now being said in certain quarters regarding eye-strain. Eye-strain and its results, or the existence of an error in refraction or position of the eye, and the reaction in the system consequent upon the efforts made to correct it, has had an interesting career. Who first discovered its malignant powers does not greatly matter—there it is. Neglected for a time, it after a while "caught on," and then in certain quarters and by certain physicians it was made the scapegoat for everything and anything. The theory was (or is) that by reason of the constant efforts to correct some optical error so much waste of nerve force is incurred that many morbid reflexes are set up. If the exponents had been content to be moderate, and to attribute to eye-strain headache and similar symptoms, they would have carried with them the good opinion of all sound practitioners, but the list of "convictions" recorded against the prisoner has been swelled to an appalling bulk. We are told, for example, in a book by Ranney (New York), one of the most zealous of the zealous, that diabetes is at times due to eye-strain. Gould (Philadelphia), another John Baptist of eye-strain, considers that it may be to wear and tear produced by eye-strain that the tubercle bacillus owes its chief chance of success in attack. Another writer attributes moral delinquencies to astigmatism.

A very interesting discussion, to judge from the published reports, took place recently in the New York Academy of Medicine, the subject of which was, "The Eye in its Relation to Functional Nervous Disease." The first paper was by Dana, who divides eye-strain into two varieties: (1) an effort to overcome errors of refraction or of muscle balance, and (2) an effort to supplement cortically the imperfection of the images received by a defective eye. This latter kind of eye-strain, which is really a brain-strain, was in his view the only kind of strain which could do any harm. We do not say we altogether agree with this statement, but with the following sentence we are certainly in accord: "Glassing was enormously overdone as well as underdone, and had become in a way a real psychosis." In several of the other papers, too, there was made a strong plea for more common sense in the view taken in regard to eye-strain than prevailed in some quarters. In dealing with chorea, Dr. Sachs was very trenchant; from his personal experience he did not know, he said, of a single case in which the epileptic seizures had been altogether inhibited or even diminished in number by the wearing of glasses, by the cutting of muscles, or by any other ocular measures which had been adopted.

From the frank expression of these views, contrasting so strongly with those mentioned previously, it appears, then, as though the palmy days of eye-strain were beginning to decline. It is very necessary that this should be so, for the claims made by faddists on its behalf have been absurdly extravagant. It is in America almost entirely that these faddists and their pretensions have flourished, and now in America even the axe is being laid to the root of the tree. What we would urge is, that we have in eye-strain, if that be a suitable expression, a source of reflex irritation and loss of nerve force capable of doing much functional injury to an unstable organ; we ought to recognize this perhaps more frequently than we do. But on the one hand we ought not to be led astray into thinking that it is the root of all evil, while on the other we must not abandon the recogni-

tion of its existence as a very serious and somewhat frequent evil, because its enthusiastic friends had "puffed" its merits unwisely in the past. The frog is still a good frog, although it has failed to make itself look like a bull.

FURTHER OBSERVATIONS ON THE THERAPEUTIC VALUE OF RADIUM AND THORIUM.

In concluding an article on this subject in the *British Medical Journal* of June 11, 1904, MACLEOD states that in his experience the therapeutic value of radium bromide, so far, may be thus summarized:

Its chief utility is in the treatment of rodent ulcer, and in the case of small rodent ulcers it acts almost like a charm. In rodent ulcers of a diameter larger than that of a shilling treatment by the *x*-rays is more practical, as the whole of the ulcer can generally be exposed at once and not piecemeal, as with the small quantities of radium at present at our disposal. In some cases of rodent ulcer, however, which have been subjected to a long series of exposure to the *x*-rays, the rays seem to lose their effect and the healing process becomes stationary; then exposure to radium may be used with advantage and the healing again stimulated. With regard to epithelioma the writer's experience is disappointing, but it is insufficient to base any definite conclusions upon. He is inclined to regard it of little value, and to urge again the necessity of immediate excisions and the postponement of treatment by the various radiations till after operation. In the case of cancer of the uterus further experience is necessary before any definite statement can be made; it is possible that the radium may prove a useful adjunct to the surgical treatment.

In lupus vulgaris radium causes the disappearance of the granuloma and a replacement of it by healthy scar tissue; but except in very small lesions this treatment is not at present practical. It is a useful adjuvant to the Finsen light and *x*-rays, however, as it can be applied to positions which are difficult to get at, such as about the eyelids and mucous membrane of the nose. In the verrucose type of lupus vulgaris, however, it is superior to the Finsen light.

In lupus erythematosus its value seems to be negligible.

The writer has tried the effect of thorium on two cases of lupus vulgaris. A quarter of a pound of hydroxide of thorium was sealed up in a flat rubber bag. It was thought that as the thorium was radioactive, though its activity was only 1 in 1,000,000 of that of radium, still the large quantity used and long exposure might have an appreciable effect. In one case in which it has had an extensive trial, namely, a case of tuberculosis cutis in which there was an ulcerated patch about two inches in its long diameter, situated above the left heel in a young girl, the thorium did not seem to produce the slightest effect, even though it was worn bandaged over the part every night, while the girl was sleeping, for a fortnight. She was then seen, and the bag applied each night for another fortnight, and so on. It did not even set up an inflammatory reaction, and it produced no impression in reducing the hyperemia or in healing up the lesion. Nor did it seem to be the rubber of the bag which prevented the thorium rays from causing changes in the diseased tissue, for during one of these fortnights the bag began to leak, and the ulcerated surface was found to be dusted over with thorium each morning without any appreciable effect.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

In *Medicine* for July, 1904, PREBLE publishes an article in which he reminds us that there is scarcely a drug in the Pharmacopœia, scarcely a method, physical, electrical, hydropathic, or mechanical, which has not been tried again and again in the treatment of pulmonary tuberculosis, and yet out of all this careful and conscientious effort no drug or method has emerged triumphant. The only thing upon which all are now agreed is that the patient must be supplied with all the necessaries of life in liberal quantities and of the best qualities; that the energies of his body must be conserved and strengthened in every way, in order that the healing power inherent in us all may bring about a cure. Drugs and other therapeutic means are to be employed to combat individual symptoms as they arise,

but the disease itself must be left to nature.

The first and most essential thing is to supply the patient with good, pure air. The author believes that, when it is possible, the patient should be removed to some one of the health resorts, where the climatic conditions have proved favorable to these cases, but unfortunately a very large percentage of tubercular patients are not able to stand the expense of such a change. One of the most important new facts in the treatment of this disease is that the patient can be supplied at home with the necessary air. Nothing was more hopeless than these cases so long as it was believed that a change of climate was absolutely essential. We realize now that much can be done in the way of supplying an abundance of air, even in so crowded and otherwise undesirable a place as Chicago. If it can be done there, it can be done anywhere. This is not possible in all parts of the city, but there are, fortunately, many places available to those of even the slenderest means where an abundance of fresh air can be supplied. There are many outlying districts easily reached by a single car fare where the necessary open space can be obtained, and if the family refuses to remove to such a neighborhood, and persists in remaining in a crowded, ill-ventilated flat, the case is practically hopeless.

The family should take either some flat or house where there is a back yard, in which a tent, or still better, a board shack, may be erected for the patient. Such a shack can be built at very small expense. It should be so proportioned as to contain about 1000 cubic feet of space, and should be built of unmatched boards, so as to provide an abundance of ventilation, even when the weather is such as to require the closure of most or all the windows. The floor should be raised from the ground sufficiently to secure dryness, and the sides should be enclosed for about four feet from the floor. Above this line the walls should be of windows, arranged in such a way that they swing out from hinges at the top. The advantages of the arrangement of the windows are that they are inexpensive, and can all be open at once, even in case of rain. Opening outward, they serve as a canopy, and prevent the rain beating in, in a way which sliding windows do not. The roof should be rainproof.

In such a building when the windows are open, the patient is practically out-of-doors, and yet can be easily protected from rain, and, if necessary, from direct draft. Furthermore the patient can be gradually accustomed to the exposure if that is necessary. There is no doubt that the doctor will often meet with opposition from the family, which can only gradually be overcome as the improving condition of the patient allays the fears and traditional opposition which many people show to an abundance of air.

The furnishing of this house should be of the simplest. A rug by the bedside, a table, a chair or two, and the bed. The bed should be a simple iron bed, with comfortable mattress and springs. The covering should suit the temperature, and be so arranged as to prevent the patient becoming uncovered during sleep. A sleeping bag or some similar device may be employed for this purpose. The night-clothing should be of flannel, certainly so if the patient is sweating at night.

It is obviously useless to attempt to heat such a structure as the one suggested, and usually the patient will require nothing more than an abundance of clothing. Even in the coldest weather nothing more than a hot-water bag is required. The patient should look upon this house as his home, and here he should spend his nights and those portions of the day which are spent indoors.

CONGENITAL DISPLACEMENT OF THE HIPS.

After commenting upon the favorable results by the Lorenz method of bloodless reduction in congenital displacement of the hips, obtained at the Hospital for Ruptured and Crippled, New York, SMITH (*Clinical Journal,* March 9, 1904), in the light of his own experience, suggests some rules by which the serious accidents reported by some surgeons may be avoided.

The operation by manipulations should be practiced only in favorable cases. In all cases there should be a preliminary treatment by exercises and stretching. In attempting reduction there should be avoidance of severe force. The subcutaneous division of adductors, together with

rupture of the deeper fibers, should be substituted for Lorenz's method of hand-sawing. A simple iron splint passing across the buttocks will hold the limbs in the required position, will allow observation of the condition of the parts, and will permit of readjustment if desirable. The splint, moreover, can be applied in a few minutes, whereas the use of the plaster casing necessitates the patient being nearly an hour longer under the anesthetic.

INCONTINENCE OF FECES TREATED BY SUBMUCOUS INJECTION OF PARAFFIN.

BURGESS *(Lancet,* March 12, 1904) in two cases of incontinence of feces has obtained great benefit from the submucous injection of paraffin into the lower portion of the rectum.

One patient, a male aged fifty-eight years, had incontinence following two operations for fistula *in ano*. On examination no trace of the sphincter could be found, and the anus extended in a posterior direction almost to the coccyx and was surrounded by several dense scars, the results of former ulceration. Under local anesthesia paraffin was injected, in several places, into the submucous tissue of the rectum. The melting point of the paraffin was 111° F., and at two sittings a total of 52 cubic centimeters was introduced.

The second patient was a boy aged seven years who had complete incontinence of feces, associated with a large rectal prolapse, dating from infancy. The anus was abnormally large and lax and easily admitted four fingers, while there appeared to be an entire absence of sphincteric action. Six cubic centimeters of paraffin was injected at the first sitting with some improvement. On a subsequent occasion 27 cubic centimeters was introduced in three successive tiers, each tier consisting of three nodules of 3 cubic centimeters each. The prolapse has never recurred, while the incontinence was considerably improved. It finally was relieved completely by narrowing the enlarged anus by a plastic procedure similar to Tait's flap-splitting operation for the repair of an incomplete laceration of a female perineum.

CHRONIC NEPHRITIS—SURGICAL TREATMENT.

The surgical treatment of Bright's disease was discussed at a meeting of the Chicago Surgical Society and the Chicago Medical Society, held January 13, 1904, and reported in the *Medical News* of February 27, 1904.

ELLIOTT stated that the statistics available to date showed the total number of cases of true Bright's disease operated upon as 76. Of these 36 died, 26 were improved, 12 were unimproved, while 2 were made worse. Of the 36 fatal cases 13 died within the first week, and 20 during the first month following operation. These statistics demonstrate that 65.80 per cent of cases operated upon for the various forms of Bright's disease failed to be favorably influenced.

Cases of chronic interstitial nephritis are not adapted to surgical treatment, the only exception to this rule being the comparatively rare circumstance of an acute nephritis, engrafted upon a chronic interstitial lesion, in which event the acute inflammatory attack might induce the necessary element of intracapsular tension.

The mortality of 76 per cent in operated cases of advanced chronic interstitial nephritis is almost a prohibitive one, and the chances of prolonging life much less promising than those afforded by medical treatment. Experience to date seems to indicate that cases of chronic parenchymatous nephritis in young subjects, especially in those cases following acute infective nephritis, offer the most favorable material for operation. Statistics of operations in parenchymatous nephritis indicate that a competent heart is the most important consideration influencing the decision to operate.

Chronic Bright's disease and its development constitutes a disease of the whole system. The general edema or anasarca in chronic renal disease, in many instances, is in great measure a cardiac dropsy, brought about by advancing myocardial degeneration, and the case is apt to take on those cardiac aspects which virtually convert the therapeutic problem into the question of sustaining a failing heart. The results of experimentation demonstrate that within a period of 3½ months after decapsulation, a new, and in some

cases a tougher, fibrous envelope has taken the place of the original capsule. This fact probably accounts for the many relapses and deaths after that period, in operated cases, and in chronic cases, at least, it narrows the prospect of improvement to a period of months.

From a standpoint of the ophthalmologist SUKER presented statistics which prove that decapsulation of the kidney from chronic Bright's disease is absolutely contraindicated whenever such patients have a retinitis or a neuroretinitis albuminurica, with or without retinal hemorrhages.

ANDREWS reported four cases of decapsulation of the kidneys for Bright's disease. Three of the patients were unimproved by the operation; the fourth, one of intermittent hydronephrosis and nephritis, was operated on two months ago. There was relief from all of the symptoms by a combined nephropexy and complete decortication of one kidney, but this was due probably to the nephropexy rather than to the decortication.

OCHSNER operated on seven apparently hopeless cases of advanced nephritis; five died, and of the two who survived, one patient, thirty-six years of age, operated upon six months ago, is well. The second, a man fifty-one years of age, an alcoholic, with marked edema and signs of advanced interstitial nephritis, is still alive, although the speaker thought that he would die soon.

FERGUSON, after an experience of twenty operative cases, has formulated the following indications for surgical intervention in Bright's disease: In all cases of tender or floating kidneys the kidneys should be decapsulated and suspended. For floating kidneys presenting marked evidence of Bright's disease, decapsulation is indicated, as it is in nephritis itself.

RIES narrated an interesting experience with a case of hematuria in which he resorted to decapsulation. At a subsequent operation it became necessary to remove the kidney. The newly formed fibrous tissue about the capsule was about as thick as a little finger. In over six hundred sections made from the excised kidney but one anastomosis was found, which, however, was not a direct anastomosis of kidney tissue. This disproves the theory that the success of decapsulation is due to the formation of anastomoses.

BRUNSON reported a case of chronic Bright's disease in which the patient fully recovered from the effects of renal decapsulation, but finally died of Bright's disease.

VOLVULUS OF THE OMENTUM.

STEWART (*Journal of the American Medical Association*, March 19, 1904) has collected nine cases of volvulus of the omentum, seven of which were males and two females, their ages ranging from thirty-three to seventy-nine years. The omentum was connected with a hernia in five of the seven cases in which hernia was present. The symptoms were acute in all and pointed to some serious intraperitoneal lesion. The diagnosis was not made in any case; two were diagnosticated strangulated hernia, four appendicitis, one irreducible hernia, one intraperitoneal abscess, and one suppurating, or ovarian cyst.

The tumor could be palpated in five; in four no tumor could be felt. There seems to be no way by which a diagnosis may be reached. A movable, doughy tumor coming on quickly after attempts to reduce a hernia is suggestive of omental torsion. A count of leucocytes may contribute in differentiating from abscess. In all of the cases the importance of immediate operation was recognized.

The amount of the omentum involved varied from a portion the size of a large fig to the entire omentum, forming a mass the size of a man's head. The tip of the omental mass was fixed in six cases, thus forming two supports between which the omentum might turn. The cause of torsion was the forcible attempt to reduce hernia in four cases, coughing in one, and unknown in four.

In those cases of hernia in which there have been symptoms of strangulation, and in which only a strand of omentum is found in the sac at the time of operation, Weiner insists on a thorough investigation of the intra-abdominal portion of the omentum for torsion.

These cases furnish additional proof that strenuous efforts to reduce hernia are exceedingly hazardous.

A SUBSTITUTE FOR RUBBER GLOVES.

MURPHY (*Journal of the American Medical Association,* March 19, 1904) has found that a four-, six-, or eight-per-cent solution of gutta-percha in benzine, when applied to the hands of the surgeon or the skin of the patient, will seal these surfaces with an insoluble, impervious, and practically imperceptible coating—a coating that will not allow the secretions of the skin to escape, and will not admit secretions, blood, or pus into the crevices of the skin. At the same time it does not impair the sense of touch nor the pliability of the skin. A similar solution in acetone also meets most of the requirements.

Murphy's routine method of hand preparation is as follows: First, five to seven minutes' scrubbing with spirits of green soap and running hot water; second, three minutes' washing with alcohol; third, when the hands are thoroughly dried the gutta-percha solution is poured over the hands and forearms, care being taken to fill in around and beneath the nails. The hands must be kept exposed to the air with the fingers separated until thoroughly dry. The coating is very thin and can be recognized only by its glazed appearance. It will resist soap and water, but is easily removed by washing in benzine. The hands can be washed in bichloride or any of the antiseptic solutions without interfering with the coating or affecting the skin. If the operations be many, or prolonged, the coating wears away from the tips of the fingers, but is easily renewed. For the remaining portion of the hands one application is sufficient for a whole morning's work.

The four-per-cent solution of rubber wears better on the tips of the fingers in handling instruments, sponges, and tissues than the acetone solution.

For the abdomen the acetone solution has the advantage, as it dries in three to four seconds after its application, while the benzine solution takes from three to four and a half minutes to make a dry, firm coating.

The preparation of the patient's skin consists in five minutes' scrubbing with spirits of green soap, washing with ether, followed by alcohol. The surface is then swabbed over thoroughly with the benzine or acetone solution.

The gutta-percha solution is prepared by dissolving the pure gutta-percha chips in sterile benzine or acetone. These solutions do not stand boiling, as this impairs the adhesiveness and elasticity of the coating.

EXTRA-UTERINE PREGNANCY.

RUNGE (*Archiv für Gynäkologie,* Bd. lxx, Heft 3) discusses the statistics of 233 cases of extra-uterine pregnancy occurring in Gusserow's clinic during the last nine years. They were made up of 108 cases of hematocele after extra-uterine pregnancy, 73 tubal abortions, 47 tubal ruptures, and 5 intact tubal pregnancies. Of the 47 ruptures, 39 were into the abdominal cavity, and 8 into the broad ligament. Of the 108 hematoceles, 17 were complicated by suppuration or gangrene. The average age of the patients was thirty years and nine months; 33 of the patients were primiparæ, and 195 multiparæ. The extra-uterine pregnancies occurred in the latter at an average age of four years after the last intra-uterine pregnancy. In a large number of the patients the cause of the condition could be clearly traced to a pathological confinement, or to chronic gonorrhea.

Hemorrhage, the most frequent symptom, occurred in 192 cases, the hemorrhage being uterine. The average time of its appearance was forty days after the last menstruation. The bleeding is usually slight and repeated, and is due to uterine contractions separating the decidual membrane from its walls. Other symptoms are pain, disturbance of micturition and defecation, faintness, dizziness, and discharge of decidual membrane. Usually the uterus was enlarged. Extra-uterine pregnancies, as a rule, terminate during the first or second month. Abortions occurred 31 times during the first month, and 23 times during the second month; ruptures occurred 7 times during the first month and 22 times during the second month.

Operative treatment for abortion or rupture need only be resorted to when life is in danger, when the tumor is distinctly enlarging, when the general health is getting progressively worse, or the mass not getting smaller, or finally, after prolonged temperature elevations. Laparot-

omy is the operation of choice for either abortion or rupture, drainage in most cases being unnecessary. Where possible, placenta and germinal vesicle should be removed without rupture. Coagula should be removed wherever they can be reached easily; decomposition indicates thorough cleansing of the abdominal cavity.

Hematocele should be treated conservatively wherever possible. If operations are necessary they should be through the posterior vaginal vault. Laparotomy is indicated only where the tumor is very large, or the tumor not accessible.

Of the 73 abortions, 36 recovered with conservative treatment, 36 after operative treatment; one died after operation. Of the 47 tubal ruptures, 5 recovered without operation, 31 with operation, and 11 died after operation.

METRORRHAGIA DUE TO RETAINED PLACENTA.

Since the introduction of antisepsis during labor and abortion, SOREDEY *(Journal des Praticiens,* Jan. 2, 1904) has observed that the retention of placental débris is not always accompanied by the phenomena of infection. Fragments of the after-birth may remain in the uterus for several weeks, or even months, without undergoing serious alterations. As a rule the only symptom is a persistent rebellious and indefinitely prolonged metrorrhagia. Since the occurrence of a miscarriage in these cases either is not recognized, or is purposely concealed, an erroneous diagnosis of hemorrhagic metritis is usually made and improper treatment instituted.

The hemorrhages in themselves are sufficiently characteristic to make the diagnosis easy. Their uninterrupted prolongation and recrudescence, even during repose, occurring in a woman otherwise well, and whose uterus previously has been healthy, should arouse a suspicion of the hemorrhage being due to retained placenta. Especially significant is the occurrence of the metrorrhagia after a more or less prolonged interruption of menstruation. These symptoms, taken in conjunction with the objective signs of early pregnancy, establish the diagnosis, even in the absence of a subjective history.

Curettage should be performed as soon as the diagnosis is made. Usually the hemorrhage is arrested immediately, but a moderately firm gauze pack and a vaginal tampon should be introduced for the first twenty-four hours to guard against a recurrence of bleeding. In the presence of infection the writer employs a drain saturated with a mixture of one part of creosote to three of glycerin. This should be renewed daily for several days and the uterine cavity cleansed with hydrogen peroxide or a two-per-cent solution of chloride of zinc. Three weeks in bed completes the cure.

TREATMENT OF ASCITES WITH OMENTOPEXY.

After reviewing the experimental researches which led up to the establishment of Talma's operation of omentopexy, TURGARD *(Annales de la Polyclinique de Lille,* Nos. 5 and 6, 1904) concludes that it is possible and easy to establish a communication between the blood of the portal system and the vena cava in cases where the portal vein has been obliterated; that the entrance of portal blood into the general circulation is not necessarily fatal to animals; that so far as the liver is concerned the operation has no deleterious influence on its nutrition and function. In man a direct anastomosis between the veins may be established. Vidal performed a lateral anastomosis between the vena cava and the portal vein for hematemesis. The operative and immediate results were good, but the patient died four months later of general venous infection of intestinal origin. The more popular method is indirect anastomosis, which may be done either by sewing the omentum to the liver and diaphragm, by sewing the omentum to the skin of the abdominal wall, by fastening it between the outer layer of the peritoneum and the muscular part of the abdominal wall, or only to the surface of the parietal peritoneum. The two latter methods are employed most frequently. Drainage is unnecessary. Local anesthesia is often sufficient for the operation. Of 108 cases which the author has collected, 58 were improved or cured, 14 were not improved, and 36 died. The results in hypertrophic cirrhosis seem to have been somewhat better than in atrophic; 66 per cent of the former recovering and only 45 per cent of the latter.

RECURRENT DISLOCATION OF THE PATELLA—OPERATIVE TREATMENT.

KROGIUS *(Centralblatt für Chirurgie,* March 5, 1904) reports a case in which the patella was dislocated outward whenever the patient flexed the knee. In order to overcome this condition he devised a new operation, which consists of: (1) A curved incision along the outer side of the patella and exposure of the anterior surface of the joint by dissection. (2) A vertical incision through the iliotibial band and fibrous capsule, but sparing the synovial membrane, from a point a finger-breadth above the patella to the tuberosity of the tibia. (3) The formation of a longitudinal flap the width of two fingers along the inner side of the patella, by making two parallel incisions similar to the above vertical incision. (4) Closure of the longitudinal defect caused by raising the flap along the inner side of the patella. (5) Displacement of the flap across to the outer side of the patella and securing it by catgut sutures to the edges of the first vertical incision. (6) Closure of the skin wound, with drainage, and splinting of the limb.

Massage was begun after three or four weeks.

The displaced longitudinal flap which retains its original attachment at either end overcomes the outward pull on the patella and holds it in proper position when the knee is flexed.

One case was completely cured. In another case in which infection occurred the results were not satisfactory. The principal difficulty is to avoid opening the synovial membrane, although a small opening does no harm.

ALCOHOL APPLICATIONS.

KOLBASSANKO (*Therapeutische Monatshefte,* vol. xvii, p. 635) recommends alcohol applications in many surgical diseases. He has seen great benefit from them in simple inflammations, suppuration, and septic conditions, and even upon foci lying at considerable depth. He has been able to prevent many operations by using them alone. Six to eight layers of gauze are saturated with alcohol, varying in strength from 57 to 90 per cent, applied over the diseased area, and covered with a large layer of paraffin paper or oil-cloth. The alcohol is renewed as soon as it evaporates. Tender skins are powdered over with xeroform, or covered with an ointment of xeroform, orthoform, lanolin, and vaselin. If the dressing is to be continued some days, the treatment must be interrupted occasionally to permit the skin to recover. The dressing is markedly analgesic, but only while it is moist. The antiphlogistic action is exerted even on pelvic inflammations. The dressing is continued until the spontaneous pains have disappeared. If applied early, suppuration is often aborted by this treatment; if applied late, suppuration is checked and prevented from spreading. Phlegmonous angina and scarlet fever also are favorably influenced by the alcohol dressings.

BONY SUTURE OF EPIPHYSEAL FRACTURE.

LAMBOTTE *(Annales de la Société Médicale d'Anvers,* December, 1903) is an adherent of direct operative treatment of fractures, especially those of the irreducible variety. Ultimate bad operative results are due to a faulty method or a faulty technique. The writer has had occasion to employ bony suture in three cases. In the first the seat of fracture extended from the inner border of the humerus, 6 centimeters above the epicondyle, obliquely downward into the articulation between the condyle and the trochlear surface. The epitrochlear fragment was displaced; active movements were impossible, passive movements very painful. Operation was performed on the eighth day after the accident. One incision 7 centimeters long was made over the inner surface of the humerus; a second shorter one over the epicondyle. The fragment was liberated carefully and replaced by manipulation, and to retain it the bones were perforated transversely and fastened together by an iron screw, which penetrated the humeral epiphysis; a second screw fastened the fragments together obliquely. On the fifth day passive movements of flexion and extension could be practiced without pain; three weeks later the patient was discharged cured. In the second patient the posterior part of the calcaneum had been torn away. The fragment was secured to the body of the

calcaneum by means of two long screws; the patient walked on the eighth day. A Dupuytren's fracture was treated in a similar manner and with similar success.

PERMANENT CURE OF UTERINE CARCINOMA.

FLAISCHLEN *(Centralblatt für Gynäkologie,* vol. xlii, No. 52) has investigated the remote results of 48 cases of carcinoma of the uterus operated upon by the vaginal route. Of these patients 4 died immediately after the operation, and 20 (42 per cent) remained free from recurrence; 17 of these are still alive, seven to eighteen years after the operation. The remaining 3 died of intercurrent affections; 34 per cent were cured permanently. The diagnosis in all cases was established by microscopical examination. Of the women experiencing recurrence, 16 died during the first two years, 3 during the third year, and 5 in four to five years. The author emphasizes the necessity of early recognition and operation to achieve the best results. These statistics show that the vaginal operation is not a palliative measure only.

SUTURE OF THE HEART.

RENON *(La Tribune Médicale,* 1904, No. 3) states that all wounds of the precordial region accompanied by notable hemorrhage, either external or internal, should lead to a suspicion of wound of the heart and should command immediate intervention. The operation should be performed rapidly and under the most rigid asepsis.

He reports the case of a man who, half an hour before coming under observation, had stabbed himself in the chest. He was almost exsanguinated. The wound was in the fourth interspace below the nipple. After some stimulation operation was performed by making an incision four inches long and resecting the fourth and fifth ribs. The pericardial cavity was cleansed of its clots, at which time the hemorrhage became most threatening. The finger was quickly inserted into the wound, thus partially controlling the bleeding. The heart muscle was sutured over the finger with catgut, the pericardium closed, leaving a small drain in place. The patient was given normal salt solution and other stimulation, but did not rally, dying about thirty hours after the operation. The autopsy revealed the perfect state of the sutures; no leakage had occurred in the pericardium; the wound, which had been thought to be situated at the base, was found at the apex. Both lungs presented an advanced stage of tuberculosis.

PERFORATION OF THE GALL-BLADDER —RESULTS OF OPERATIVE TREATMENT.

NUK *(Deutsche Zeitschrift für Chirurgie,* Jan. 20, 1904) has been able to collect only eleven cases in which operation has been performed for spontaneous rupture of the gall-bladder into the general peritoneal cavity. Perforation occurred most commonly in cases in which a latent period of gall-stones was followed by an infection of the gall-bladder. Obstruction of the cystic duct causes an increase of pressure within the gall-bladder, so that slight external traumatism, such as muscular action during defecation, or vomiting, may determine a rupture.

Stones were present in all the reported cases. In five a stone was found in the gall-bladder opening, and in three the stone was found lying in the peritoneal cavity.

The perforation was single in every instance, and varied in size from a pea to a slit two centimeters long. Perforation occurred in all parts of the gall-bladder with about equal frequency.

In some cases the gall-bladder wall was thickened, in others thinned, and in many the walls were extremely friable. The gall-bladder was contracted in three cases, and surrounded by adhesions in only two.

In one case death was due chiefly to hemorrhage.

The exudate of the resulting peritonitis may be serous and tinged with bile or blood, or it may be mucopurulent. It is usually moderate in amount, but occasionally large exudates have been found. As a rule symptoms suggestive of cholelithiasis precede the perforation. In the absence of such a history a diagnosis of volvulus in one case, obstruction of the bowel in another, and strangulated hernia in a third was made prior to operation.

Expectant treatment of perforation of

the gall-bladder into the free peritoneal cavity is of no avail. Operative treatment has given brilliant results, eight of the eleven reported cases having recovered. When the origin of the peritonitis cannot be determined before operation, the abdomen should be opened in the median line. Gall-stones in the peritoneal cavity or a bile-stained exudate point to the source of trouble and indicate a second incision along the right costal margin. The gall-stones should be removed, and the gall-bladder either excised or drained. The gall-bladder walls usually are too friable to permit of suturing the perforation. The peritoneal cavity should be drained in every case.

FRACTURES OF THE LOWER EXTREMITY—AMBULATORY TREATMENT.

By the use of a splint devised by Hessing, it is possible, according to OPENSHAW *(Lancet,* March 12, 1904), for a patient to begin to walk, with the aid of a cane, within three days after having sustained a fracture of the femur.

This splint is useful mainly in two conditions—fractures of the lower extremity, and disease of the elbow, hip, or knee, or fractures of the same joints. A casing of stout leather strengthened with thin steel bands encircles the thigh, from just above the patella to the level of the tuber ischii behind. The leather is open down the front, where it is to be laced up when fitted. Numerous holes are punched in it to prevent uncomfortable heat, and it is lined with flannel. Along each side are clamped firm, adjustable steel supports, which serve to transmit the weight of the body from the leather casing to the ground. The weight of the body is transmitted to the leather thigh-casing in two ways: first, the tuber ischii on that side rests on the top of the case and the steel bands are arranged to meet this pressure; and secondly, the case is so accurately fitted that the thigh fits into it like one cone into another. In this way no pressure is transmitted to the lower end of the broken femur.

If extension is desirable, an anklet is provided to which are attached three pairs of strong tapes, fastening beneath the steel sole-piece.

Fractures of the tibia and fibula can be held in place by a casing applied to the lower leg. It fits accurately the curve of the leg and is laced down the front, so that in case of any diminution of swelling, or atrophy of muscles, it may still fit closely. The leg casing is adjustable up and down the lateral supports, and also, to some extent, forward and backward.

The following is the method of manufacture: A plaster cast is taken of the thigh, the leg, and the foot. In order to outline the various points on the inner surface of the cast, a line is drawn with an indelible pencil up the entire length of the leg, anteriorly and laterally. The positions of the knee- and ankle-joints are also marked out. The leg is then coated with oil and the plaster bandages are applied. The foot must be kept at a right angle. The plaster must be good and set quickly, and the bandage must be of thin texture so as to fit smoothly and evenly. It is not applied tightly, but merely laid on so as to get the exact size of the limb. The cast is removed while still wet by splitting it down the front by a vertical incision slightly to the outer side, and then horizontally across the front of the ankle-joint. The edges are fitted together again, the incision thus being closed, and the whole is consolidated by a final plaster-of-Paris bandage applied after removal. The cast thus taken should be about one-quarter of an inch thick. From the cast a model is made in solid plaster, and on this the leather while wet is molded and allowed to dry.

In order to insure sufficient strength to the leather casings, especially for the use of adults, thin steel bands are embedded in the leather. This is done by fastening the bands to the plaster cast, so that when the leather has been molded and is removed, the bands may be riveted where they have left an impress on the leather. One band must always strengthen the thigh-piece below the tuber ischii. The holes for the escape of perspiration are punched from within out. The lateral supports are jointed at the knee, but the joint is fixed with a peg screw, so that, if desirable, it may be immobilized.

By means of this splint the patient in nearly every case of fracture of the leg can be made to walk, with or without the aid of a stick, at the end of a week.

SURGICAL DISEASES OF THE KIDNEYS —INTRAVESICAL SEPARATION OF THE URINES FROM THE TWO URETERS AN AID TO DIAGNOSIS.

As there can be no greater calamity in surgery than the excision of a kidney when the remaining kidney is either functionally absent or so imperfect that it is incompetent to carry on by itself the work of the body, BICKERSTETH *(Lancet,* March 26, 1904) calls attention to the fact that by the intravesical separation of the urines with Luys's separator it is now in the power of the surgeon to obtain samples of the urines from both kidneys, thereby being able to determine the state of health of each. The instrument and the procedure have been employed as routine for the last eighteen months in Paris in renal cases.

The separator looks like an ordinary urethral bougie with a rather peculiar curve at its vesical end; at the opposite extremity it is fitted with a handle and screw suggestive of a lithotrite. The shank of the instrument, including the curved portion, is made up of three parts: in the middle there is a thin metallic support, flattened from side to side, and on each side of this, and closely applied against it, is a metal catheter tube, semicircular in section. The two catheter tubes are provided with eyes on the concave border of their curved portion; they can be quickly detached from, and reapplied to, the sides of the median support, and when they are in place they make up, with the support, a single instrument which is circular in section and corresponds in size to a No. 21 bougie, French scale (between 12 and 13 English). Along the upper edge of the median support runs a little rod which is arranged to move backward or forward at will, as the screw at the end of the handle is turned one way or the other; at the junction of the straight with the curved part of the instrument this rod ends in a little chain, the other end of which is attached close to the instrument's point. When not in actual use the chain is slack and lies closely along the hollow of the curve, but by turning the screw the chain can be tightened up until it forms a straight and rigid cord across the curve.

To prepare the instrument for use the two catheter tubes are detached, and then, over the median support with the chain slack, a thin tube of pure rubber specially prepared for the purpose is drawn. The catheters are replaced and all is ready for work. It will be noted if the chain be now tightened up that as this rises it gradually stretches and draws out the rubber tube until, when the chain is tight, there is a complete septum of rubber filling up the whole curve of the instrument. The curves of the instrument apply themselves against the floor and neck of the bladder when the separator is in use. The floor of the bladder is depressed by the separator, and the natural elasticity of the parts is quite sufficient to cause them to fit closely against the convexity of the curve, only very slight pressure being required to make a perfectly water-tight division.

In Luys's separator, along the whole of the convexity of its curve, the lower edge of the median support projects appreciably beyond the lower edges of the two lateral catheters, and this is an essential point, so that the lower edge of the actual "septum" may make good contact with the floor of the bladder. Copies of the instrument have found their way on to the English market in which this point seems altogether to have been lost sight of.

Though it is easier and better to introduce the separator while the patient is lying down, when once the curved part of the instrument has entered the bladder he must sit upright, and must remain in this position throughout the whole time during which the separation is going on. This is absolutely necessary to bring the true floor of the bladder into its proper position as the lowest part of it, and in order that the curves of the instrument may fit snugly and closely against those parts for which they were designed. A special table is not absolutely necessary. The measure may be carried out satisfactorily with the patient laid across a bed or on an ordinary table with the feet supported on two stools. If a back-rest, closed, is placed underneath the patient's loins and back, an assistant can easily raise this when required, so as to set the patient up and support him comfortably in the upright position for as long as may be necessary.

Before making any other preparations

the patient should be given a pint of water or tea to drink.

General anesthetics are not absolutely indicated, though on this point the operator must use his own judgment.

A thorough cleansing of the parts about the urethral orifice can be done by a nurse, who then places a pledget of lint soaked in five-per-cent cocaine solution between the labia.

The first step of the actual procedure is to pass a catheter and to draw off and to set on one side the specimen of the "mixed urines" thus obtained. Next the bladder is washed out, and upon the carefulness and thoroughness with which this is done much will depend. It is essential that the bladder should be thoroughly clean, and if each of the last two or three "washings" is collected in a clean urine glass, and the fluid is seen to come back perfectly clear, the surgeon may feel satisfied that so far he has done his work well. Then about two ounces of fluid is injected into the bladder, and all is now ready for introducing the "separator." As a rule the instrument slides easily and smoothly into the female bladder without any difficulty at all; in the male a little difficulty may at first be found. The curves of Luys's separator, designed solely with the object of making the instrument fit closely and naturally against the floor and neck of the bladder—and which at first sight may perhaps strike an observer as peculiar—are, after all, only a little shorter and sharper than those of the French "bougies de Béniqué," in which very similar curves are selected as being most suitable for the ordinary instruments used in the treatment of stricture. These curves, when once the surgeon is used to them, do not cause any difficulty in getting the point of the separator well into the bladder, but it must be admitted that at and beyond this point when it is required to pass the whole curved part of the instrument right on into the bladder itself a little difficulty may certainly be met with, until by practice the operator has learnt how to do it. As soon as the curved part has been passed fairly into the bladder, the back-rest is raised and the patient is placed in the sitting position. Then, by turning the screw at the end of the handle, the rubber partition is raised, and the injected fluid is allowed to run off by the two catheter tubes, the ends of which have been closed by the fingers during the foregoing manipulations. This not only shows that the catheter eyes have not become blocked by urethral mucus, etc., but by filling the catheters themselves, it starts what seems to be a siphon action, and allows the urine to flow off from the bladder as fast as it enters it from the ureters. In order that the curve of the instrument may press with sufficient firmness upon the floor of the bladder to make the partition water-tight and the "separation" trustworthy, only one thing more is now necessary—the surgeon must raise the handle a little, and while doing this, at the same time draw the whole instrument gently forward toward him. The most gentle pressure suffices for this, and no force at all is either necessary or permissible. At this stage patience is required. The surgeon must not put the collecting tubes under the catheters at once, but must wait; he may have to wait three or four minutes, or even longer sometimes, until the last drops of the injected fluid have come away and urine itself begins to flow. When all is going well, the manner in which the urine flows from the catheter tubes is always most striking and characteristic. It comes with the greatest regularity, four or five drops at a time, then a pause for an appreciable interval, and after this another group of drops. Each of these groups of drops represents an "overflow" from the little pool of urine in the bladder in which the other end of the catheter tube is lying, and these periodic overflows, of course, correspond with the rhythmically recurring jets by which the urine normally escapes from the ureter into the bladder. When once the operator is satisfied that all the injected fluid has run off and that urine is now coming, he may place the collecting tubes in position; in about twenty minutes he will probably have collected about six cubic centimeters in each tube, and the tubes will be full. They can then be replaced by a fresh pair of empty tubes, and in this way a second, and if necessary, even a third, pair of specimens can be obtained.

Having accomplished the separation of the urines, the next question to consider is how to obtain the fullest possible information from the specimens which have

been secured. The surgeon can, of course, detect at once the presence of blood or pus in either of the specimens, and he can also note whether there is any difference between the two urines either in quantity or color or in the character of any deposit; but when it comes to applying the ordinary routine chemical tests he must remember that the amount of urine which he has at his disposal must always be small. The little glass tubes used to collect the urines as they drop from the two catheters hold about seven cubic centimeters (two drachms) each, and though the rate at which urine flows from the kidneys of course varies, on the average it takes about twenty minutes for a healthy kidney to fill one of these tubes. More urine can be obtained by waiting, but it is not desirable for either the surgeon or the patient that the sitting should be unduly prolonged. There will not be enough urine to float an ordinary urinometer, and therefore if the surgeon wishes to know the specific gravity he can get it, approximately, by employing a little tube containing three or four glass beads, each one of which is arranged to float in fluid of a certain definite density. He will also have to be economical of the urine in any tests he may use for albumin or for sugar.

ESERINE IN THE TREATMENT OF POST-OPERATIVE INTESTINAL PARALYSIS.

Paralysis of the intestines, as indicated by progressive meteorism, bilious vomiting at irregular intervals, absolute constipation, and rapid, thready pulse, is a condition from which patients not infrequently perish shortly after operation. In most of these cases countless autopsies have shown that there is no true infection present, but simply an accumulation of gas in the intestines.

Based on an experience of three years, ARNDT *(Centralblatt für Gynäkologie,* March 5, 1904) strongly recommends the hypodermic use of 0.001 gramme of eserine salicylate in freshly prepared solution for the treatment of this condition. He has never used more than 2 milligrammes in one day, but two or three times this amount may be used with safety. If the specified dose is not effective, it is probable that a microbic infection is present. In most of the writer's cases relief, shown by the passage of flatus, was obtained within an hour. Frequent lavage was useful in overcoming the associated gastric distention. No ill effects were observed in any of the cases.

GASTROSTOMY FOR THE EXTRACTION OF TWENTY-FIVE FOREIGN BODIES.

MONNIER'S patient *(Gazette des Hôpitaux,* 1903, lxxvi, 127), a man of twenty-two, complained of pain in the left hypochondrium and around the umbilicus; he had numerous greenish-black evacuations. In the angle between the transverse and descending colon a body shaped somewhat like a spoon could be made out. Crepitation and borborygmi were present. A rectal examination showed the presence of an enormous number of stony scybalæ. Lavage and enemata resulted in the evacuation of some of these.

Operation showed the stomach to be enormously enlarged, extending to three fingers below the false ribs. The walls were thickened, and the stomach seemed to contain several hard bodies, necessitating its opening. The ends of two discolored coffee-spoons appeared first, and in succession the following objects were removed: eight spoons, one fork with three prongs, its broken-off handle, a second fork handle, the fourth prong of this fork, a hinge, a sharp needle, a nail, and other objects—in all 25 pieces weighing almost a pound. No erosions could be discovered. The patient recovered very quickly. He explained that the objects had been swallowed with suicidal intent.

MANUAL SEPARATION OF THE PLACENTA—VALUE OF RUBBER GLOVES.

Manual separation of the placenta is the most dangerous of all the obstetrical operations. Its mortality is 13 per cent, as compared with 8.6 per cent for Cæsarian section, 4.8 per cent after version and extraction, 4.4 per cent after forceps operation, and 2.2 per cent after premature delivery. Only one-third of the patients recover without some complication after this interference, one-half of the remainder suffering from some grave type of puerperal fever. According to BAISCH *(Deutsche Medicinische Wochenschrift,* 1904, xxx, No. 6) manual separation is

indicated immediately only in very severe hemorrhage (2 to 3 pints); ordinarily, Credé's method should be employed for one to two hours, first without and then with ether, and only as a last resort should the hand be introduced for the purpose of removal. Manual separation is indicated also in partial retention of the placenta. Infection is due to hurried operation and insufficient sterilization, since during the act of removal all the germs present are inoculated into the huge wound represented by the interior of the uterus. The use of rubber gloves is of the greatest value in these cases, and since their employment the mortality at Tübingen has fallen to *nil*, the morbidity to 30 per cent.

BLOODLESS OPERATIONS ON THE SKULL UNDER LOCAL ANESTHESIA.

HEIDENHAIN (*Centralblatt für Chirurgie*, March 5, 1904) has succeeded in producing local anesthesia in several cases in which he has operated on the skull for caries, tumor of the brain, etc. He employs a .5- to 1-per-cent solution of cocaine, to each cubic centimeter of which has been added one or two drops of .1 solution of adrenalin. One cubic centimeter of this solution injected hypodermically will produce complete anesthesia of the skin, subcutaneous tissues, and fascia over an area the size of a silver dollar within half an hour. By injecting it beneath the occipito-frontalis aponeurosis, the bone and dura can also be anesthetized. The anesthesia will persist for hours.

In Germany 0.05 gramme is considered the maximum dose of cocaine, but Réclus, with an experience of 7000 cases, uses as much as 0.20 gramme in dilute solution. When using large doses the patient should not fast, and should partake of a cup of coffee with a little alcohol during the operation, and some thick soup after it. In addition the patient should be kept in the horizontal position during the operation, and for at least an hour after its completion. The increased tolerance to cocaine when used in this way is caused by the local anemia produced by the adrenalin.

In performing operations for brain tumor in two stages, the osteoplastic flap can be formed with advantage by this method of local anesthesia, and the excision of the growth can be deferred for several days. The method should prove valuable for disease originating in the middle ear.

To avoid the danger and loss of time incident to hemorrhage from the occipito-frontalis, Heidenhain surrounds the proposed line of incision by a running stitch, the successive loops of which encircle all of the soft tissues overlying the bone. This suture does not interfere with the nutrition of the flaps, and it is allowed to remain until the cutaneous sutures are removed.

CARCINOMA OF THE BREAST—OPERATIVE TREATMENT.

In operating for cancer of the breast, CHEYNE (*Lancet*, March 12, 1904) is guided by two fundamental principles, based, first, on the view that cancer is primarily a local disease, and secondly, on the removal of all probable lines along which it may spread, whether visibly infected or not.

The skin should be removed for a distance of at least two inches in all directions from the cancer, but the incision must not be carried straight down to the muscle. It must shelve gradually away from the breast, so that, for instance, in the case of the upper incision in a fairly fat woman, the pectoral muscle is not exposed till just below the clavicle. Unless this is done lobules of the breast almost inevitably will be left behind. The pectoral fascia must be removed completely, and the whole of the sternal portion of the pectoralis major should be taken away in most cases.

When the axillary glands are only slightly involved and the nerve supply can be preserved, it is not necessary to remove the pectoralis minor. The fascia of the serratus magnus where it is exposed on the axilla should be excised. All the glands and fat of the axilla should be removed in one mass along with the breast. In removing the glands along the axillary vein it is particularly important to lift up the vein at the apex of the muscle and remove the fat and glands which lie behind it. If in clearing out the axilla infected glands are found high up, the probability of commencing infection of glands above the clavicle is very considerable,

and under these circumstances the posterior triangle should be opened and the fat and glands should be cleared out of the root of the neck. Marked enlargement of the supraclavicular glands renders the case inoperable from the point of view of radical removal.

The writer has been able to trace all but one of thirty-four operative cases in which six to thirteen years have elapsed since the operation was performed.

In fourteen cases recurrence has taken place, and thirteen have died from the disease. Two patients died from other troubles without any trace of recurrence having manifested itself. Of the thirty-one cases in which the final results as to recurrence are known, seventeen, or 54.8 per cent, are alive and well; and fourteen, or 45.2 per cent, have recurred. This gives a very fair estimate of the final results of the modern operation as applied to all cases except to those in which it is manifestly impossible to remove all the existing disease.

Eight of the cases were slow-growing cancers, of which six remained well, one recurred, and one was lost sight of. The remaining twenty-six were more rapidly growing cancers; of these thirteen remained well and thirteen recurred.

In nineteen of the cases there was only a small tumor of the breast with a moderate infection of the axilla. Of these thirteen remained well, five recurred, and one has been lost sight of. In thirteen of the cases there was marked infection of the axillary glands, in six of which there was recurrence, and in seven no recurrence.

Distinct enlargement of supraclavicular glands was noted in two cases, with subsequent recurrence in both.

There is no possibility of prophesying in regard to recurrence in individual cases, for in the most favorable it may take place when the disease apparently has been widely removed, while in others, which seemed extremely unfavorable, the patient has remained well. The most striking fact in regard to these cases is the great rarity of a second operation, for in the above list a second operation was performed in only three instances. When recurrence takes place it is most frequently in the supraclavicular glands, or in the bones, or in some internal organ. In a few instances where nodules have appeared on the side of the chest, this as a rule has not been the first place in which the recurrence was noted.

In this series there were two distinct instances of late recurrence. In one case the disease appeared about six years after operation, apparently about the sternum and mediastinum. In the second the disease manifested itself in the glands of the neck seven years after the operation.

THYMIC TRACHEOSTENOSIS.

Cases of thymic tracheostenosis are so rare that CARTER (*Medical Record,* April 2, 1904) believes himself justified in calling attention to the subject on the basis of one case in his own experience. He is of opinion, however, that many sudden deaths among infants, attributed to some other cause, are really due to hypertrophy of the thymus.

The term thymic tracheostenosis is used advisedly, differentiating, as it does, a condition caused by pressure of a hypertrophied thymus gland upon the trachea from an enlargement of the gland downward, and causing death by interference with the circulation. In the former case the symptoms are those of an obstruction to the passage of air in and out of the lungs, and usually results in asphyxiation, while in the latter death results very suddenly from syncope.

The patient is usually poorly nourished or rachitic. There is an inspiratory and expiratory stridor, and cyanosis is extreme. Laryngeal stridor may be a prominent symptom. Glöcker reports three cases in which this symptom was prominent, and in which the autopsy showed that death was due to thymic enlargement.

The treatment is usually unsatisfactory. Rehn, however, reported a case in which he opened the mediastinum, drew the gland forward and stitched it to the tissue over the sternum. The patient was relieved at once and recovered. Spontaneous cure of simple enlarged thymus occurs in six to twelve months, and is due to increase in the size of the thorax and development of the rings of the trachea rather than to a diminution in the size of the gland.

A study of his case leads Carter to

make the following observations and suggestions:

1. In all cases of laryngeal stridor it should be determined whether or not the thymus is enlarged.

2. On account of surgical shock being badly borne by infants, and especially those in this condition, if the symptoms are *not* urgent, postural treatment should be tried, and if in any position of the head and neck relief is afforded, that position should be maintained by suitable apparatus until nature has effected a cure by enlargement of the thorax, strengthening the tracheal rings, and diminution in the size of the gland.

3. Intubation, tracheotomy, and artificial respiration do no good.

4. The surgical procedure of opening the mediastinum, bringing forward the gland and stitching it to the tissue over the sternum, should be performed immediately if there is danger from asphyxia.

KOLLMAN FIVE-GLASS TEST.

While he is disposed to accept in the main the correctness of the now universal custom among genito-urinary specialists of making urethroscopic examinations in nearly every case of urethral disease, MUNDORFF *(Medical Record,* April 2, 1904) believes that there is a proportion of cases which do not permit of such examination, such as in cases of suspected tuberculous disease of the bladder or prostate, acute urethritis, stricture, abnormally small meatus, and the like. In these cases, as well as in those cases where the urethroscope may be employed, the Kollman five-glass test may be advantageous in helping to a diagnosis.

The method is simple, and for all practical purposes efficient, but it is not recommended as an equal of urethroscopy, only as an aid to the general practitioner. The requisite articles are as follows: a syringe of about six ounces capacity, a hard-rubber catheter, and five ordinary urine glasses. The catheter should be one having its eye as near the point as possible, otherwise errors are likely to occur.

The principle of the operation is simply the thorough cleansing of the anterior urethra, and then allowing the patient to urinate into three glasses.

The patient is instructed to call at the office early in the morning, and to retain the night's urine until the physician has thoroughly cleansed the anterior urethra. After cleansing the meatus with some antiseptic solution, the physician introduces the catheter up to the external sphincter, care being taken not to force it beyond this point. Steadying the catheter in this position by grasping the penis with the left hand and holding the catheter by the forefinger and thumb of the same hand, the physician attaches the syringe filled with a mild boric acid solution, and gently forces the fluid into the urethra. The returning fluid is allowed to fall into a urine glass held by the patient. The physician examines this and notes the presence of shreds and mucus. After detaching the syringe, it is again filled and the irrigation repeated. All the solution returning from the urethra is poured into one glass and is known as No. 1. The irrigation is continued until no more shreds are found in the irrigating fluid. Ten to fifteen irrigations may be necessary before this result is reached. When the physician is certain that he has removed all shreds present in the anterior urethra, he allows the fluid returning from the last injection to remain in the glass held by the patient, and designates this as No. 2, or the "control glass." The catheter is then withdrawn and the patient is permitted to urinate into the remaining three glasses, numbered respectively three, four and five. Glass No. 3 should always be regarded as doubtful, since it is possible that some shreds in the anterior urethra did escape the irrigation. Shreds in glasses No. 4 or 5 signify pathological changes in the posterior urethra, bladder, and possibly kidneys.

A convenient schedule in preserving results of such examinations is appended herewith:

	I	II or control	III	IV	V
Normal	shreds or clear	clear	clear	clear	clear
Anterior urethritis	shreds	clear	clear	clear	clear
Anterior urethritis	shreds	clear	shreds	clear	clear
Anterior and posterior urethritis	shreds	clear	shreds	shreds	shreds or clear
Posterior urethritis	shreds or clear	clear	shreds	shreds	shreds or clear

Possessing such schedule, the physician need but note below each column the con-

ditions found, thereby having at a glance the result of the test.

A tight meatus may interfere with the proper performance of the test, by hindering the return flow of the irrigating fluid, and thus forcing it through the external sphincter. Of course, under such conditions the results are worthless. Employing a catheter with its eye situated as near to the tip as possible is imperative, otherwise there would be an area of the urethra—that portion extending from the sphincter to a point corresponding to the situation of the catheter's eye—that would not receive the play of the irrigating fluid. For this reason it is a good plan to turn the catheter with each injection, in order that no part of the urethra escape the injected fluid.

The test is completed by making microscopical examinations of the morphological elements found in the irrigating fluid and in the urine. Shreds from the anterior urethra are composed of long twisted threads or rolls of epithelial cells, pus cells, and mucus. These epithelial cells are usually of the flat variety. The pus cells may or may not contain gonococci. Filaments from the posterior urethra are simply particles of the secretion which are contained in the ducts of the prostate gland, and which have been pressed out by the contraction of the muscular tissue; they are somewhat shorter and thicker than those from the anterior urethra, and usually sink rapidly to the bottom of the glass. Epithelial cells from the posterior urethra are of the transitional type, and are difficult to differentiate from those of the bladder. The epithelium of the bladder resembles in its character that of the ureter, namely, transitional stratified. According to Bizzozera, the type of the cells from the pelvis of the kidney, ureters, and bladder are identical. These cells are usually smaller than those from the anterior urethra, are of a polygonal or elliptical shape, and contain a large nucleus. The protoplasm is markedly granular. Von Jaksch differentiates their origin as follows: small numbers speak for the ureter; moderate numbers, and lying like the tiles of a roof, indicate the presence of a pyelitis; while large groups of cells signify bladder desquamation. He adds, however, that this method should not be regarded as an absolute guide in diagnosis, but should be considered with other symptoms. Blood cells in one or the other glass will indicate from what part of the urethra or bladder hemorrhage ensues.

CHRONIC GASTRIC DISEASE CAUSED BY NARROWNESS OF THE PYLORIC ORIFICE.

In operating upon various cases of chronic gastric derangement, MAYLARD (*British Medical Journal*, Feb. 20, 1904) has met with a condition of the pyloric orifice which suggested that the condition was probably one of congenital origin. He gives the details of seven such cases treated, and successfully, by operation.

The symptoms are so variable that they serve to mask their true cause, but the most suggestive are:

1. The existence of obstinate gastric symptoms during young adult life, not to be accounted for by any of the usually recognized causes, functional or organic. Often the patients are in a fairly good social position, where neither excess nor deficiency in the necessities of life exist; and often, too, the sufferer is one only of a family otherwise healthy in all its branches.

2. The patients are mostly women under the normal standard both in stature and build. It is only somewhat natural to suppose that this is likely to be so, because an amount of development of the fold, which in a viscus of naturally large size might not be sufficient to produce obstruction, would certainly do so in one of less dimensions. The cases reported were all women of comparatively small build, and, on account of the usually smaller stature of the female as compared with the male, it may reasonably be supposed that the former are more likely to suffer from any undue narrowing of the pyloric orifice than the latter.

3. The great improvement it is always possible to effect by dieting; but the certainty with which any return to a normal state of living will call forth a renewal of the symptoms.

Operation is, of course, the only means of cure. It is not absolutely necessary in all cases, as the patient may, by careful attention to diet, doubtless live for years, and eventually die of diseases quite un-

connected with the stomach trouble. In nearly every case, however, it must be more or less an invalid existence.

Of the three operations which may be performed — pyloroplasty, pylorodiosis, and gastrojejunostomy—the last is the proper one to adopt. Relief may be more or less immediate, but often it takes months to effect a cure. Where the stomach has been deranged for years careful treatment must be carried out for some time after the operation. The following procedure is based solely on the attempt to leave the parts after operation as much as possible in their normal anatomical relation:

An oblique incision is made through the skin commencing about 1 inch below the right costal margin and 1 inch to the right of the middle line, and extending for from 3 to 4 inches across the middle line downward and outward at a distance of about 1 inch from the left costal margin. By this incision the right rectus is divided for about half an inch and the left for 2 inches or 3 inches. The pylorus is exposed and an easy examination of the stomach afforded. To attain a perfect cicatrix it is necessary that there should be union of the anterior and posterior layers of the rectus sheath by separate lines of suture.

The posterior operation by simple suture is the one, with few exceptions, practiced. After withdrawing and turning upward the stomach and transverse colon, the mesocolon is teased through, and its edges secured by three or four stitches to the posterior wall of the stomach, which is made to present. The jejunum is picked up, closed to the duodeno-jejunal bend, applied to the stomach, and stitched to it for about 3 inches, the direction being such that when the stomach is replaced it and the united bowel still occupy much the same relation as before union. The opening of communication about 1½ inches long is made close to the great curvature, so that it comes to occupy the most dependent part of the viscus, and has also an inch or two of stitched surfaces above it. Thus it will be seen that no "angulation" of the gut is possible; there is no long loop of proximal bowel to become "waterlogged," and possibly cause trouble in the remote future; there is no need for an enteroenterostomy; and as the bile and pancreatic juices very soon mix with the gastric juice, there is little fear of the formation of peptic ulcers in the distal limb. The ejection of bile into the stomach never takes place, because the method of attachment adopted causes it and the pancreatic juice to be shot past the opening into the more readily accessible channel below. The method, practiced now for more than a year, has been followed by an entire absence of all untoward symptoms, and may insure against any complications in the future.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

Within the past few weeks the annual Cavendish Lecture of the West London Medico-Chirurgical Society has been delivered by Professor Johann von Mickulicz-Radecki of Breslau on a subject which even in its present immature stage is full of interest and which in days to come may have a very real practical importance in treatment, namely, the possibility of increasing the power of resistance to infection in certain tissues after operation, particularly in the peritoneum. At the outset the lecturer paid a tribute to the discoveries of two observers of whom Englishmen are justly proud, Jenner and Lister, whose investigations he said were the basis of all efforts to combat infectious diseases in animals and men. Infection of a wound by rabies or tetanus can be treated, and successfully treated, by inoculation. Why not render patients immune to infection of operation wounds with pyogenic bacteria by some similar inoculation? The difficulty lies chiefly in the variety of bacteria which infect wounds: it would be necessary to use no one antitoxin but a combination of several antitoxins. Within the past ten years several observers have attempted to solve the problem; and it has actually been found possible to increase the power of resistance to such microörganisms as staphylococcus aureus and albus, but not to such a degree as to be of any practical value. In the case of the streptococcus pyogenes a greater

degree of protection has been attained, but it seems to be effectual only against the particular strain of streptococcus from which the antitoxin was prepared. The practical surgeon therefore turns from such methods as at present useless. A study, however, of the efforts of nature to counteract such infections has yielded another suggestion. It seems that a large production of leucocytes, hyperleucocytosis it may be called, is a prominent feature in the phenomena following on a local infection and is a protective measure on the part of nature; may it not be possible to produce this hyperleucocytosis artificially? In the occurrence of such a condition as a natural phenomenon lies the explanation of the curious fact that during perityphlitis the resistance of the whole peritoneum is so increased that infections which under other circumstances would be deadly seem to lose their effect. If by artificial methods such an immunity of the peritoneum could be obtained, how greatly would the risks of abdominal operations be diminished! At present any operation in which the contents of stomach or intestine contaminate the peritoneum is extremely dangerous, and even with every care to isolate bowel or stomach from the rest of the peritoneum by packing around with gauze before resection or incision of the stomach or intestine, the danger is still considerable. The mortality in resection operations is not less than 20 per cent.

By experiments on animals it has been ascertained not only that it is possible to produce hyperleucocytosis artificially, but also that this artificially produced hyperleucocytosis has a real protective value against various infections. Injections of normal saline solution into the peritoneum of the guinea-pig raised the resistance of that tissue against pyogenic infection in some cases as much as sixteen-fold; it was found also that a similar increase of resistance could be obtained by subcutaneous injections of neutralized nucleic acid. To bring the conditions as nearly as possible into line with those of operations on man, animals were subjected to laparotomy and the peritoneal cavity was infected by allowing contents of the stomach or intestine to escape into it. Only one out of five animals survived when no previous hyperleucocytosis had been induced, whereas when intraperitoneal injections of nucleic acid, or of sterilized cultures of colon bacillus, or subcutaneous injections of neutralized nucleic acid had been used previously, ten animals infected similarly during laparotomy all recovered. The protective effect was less when the injections were made after the infection, and seemed to be effectual only when made within a few hours after the infection.

Encouraged by these experiments on animals Professor Mickulicz-Radecki began to use subcutaneous injections of neutralized nucleic acid on human subjects before abdominal operations. Fifty cubic centimeters of a solution of neutralized nucleic acid were injected a few hours before operation; this was found to produce marked hyperleucocytosis, and although in some cases it produced a feeling of giddiness or sickness or a rash of erysipelatoid character at the site of injection, it was usually without any untoward effect. Out of 47 cases in which laparotomy was performed and in which the peritoneum was infected by the escape of intestinal or gastric contents only seven died, and in none of these seven cases was death caused by peritonitis. In most of the cases the peritoneal cavity was irrigated with normal saline solution at the time of the laparotomy, and some of the solution was purposely left in the abdomen. The value of this local application of saline solution lies not merely in its cleansing effect, but also, as shown by the experiments on animals, in its provoking some local hyperleucocytosis and so increasing the resistive power of the peritoneum against infection. The use of these saline irrigations was, however, merely an adjunct to the protective treatment; the value of the subcutaneous injections was the point on which the lecturer wished to insist.

It is not often that the medical profession in England combines to instruct the Government on the way it should go, but the past month has seen a notable instance of this combination in a petition signed by 14,718 medical men, praying for certain alterations in the curriculum of the public elementary schools. A deputation waited on the Marquis of Londonderry as Minister of Education, urging that instruction in the elementary principles of hygiene, including temperance and the deleterious effects of alcohol,

should be given both to teachers and children. Sir William Broadbent, Sir Thomas Barlow, Sir Lauder Brunton, Sir Victor Horsley and other distinguished members of the profession spoke in support of the petition, which had at any rate the effect of drawing from the Minister of Education a statement that steps are already being taken to accomplish some such object.

A new lecture has been added to the number of annual orations delivered in connection with the various learned societies in London. The Society for the Study of Disease in Children, which itself is yet in its infancy, has established a "Wightman Lectureship," and the first lecturer was Mr. Clement Lucas, who a few days ago delivered a most interesting lecture on hereditary bias and early environment in relation to diseases and defects of children. The relative vigor of father or mother, according to Mr. Lucas, is a factor in determining which the child shall follow, not only in features, but also in sex and strength. In certain families the strength seems to be concentrated in one sex, whilst any children of the other sex are delicate or die young. The practical moral drawn is somewhat startling: the man who marries an only daughter, who in virtue of having no brothers is married for her fortune, is likely to pay the penalty of being childless, or at any rate son-less. The influence of rickets in causing enlargement of the skull might be utilized, so it was suggested, in microcephalic idiots and small-headed infants, who might be dieted so as to acquire rickets and in this way obtain more room for the brain to develop. Mr. Lucas considered that persons who had suffered from rickets in early life received some compensation for physical deformities such as knock-knees or bow-legs, in a large capacity for learning! The possibility of contagion rather than heredity being the cause of family incidence of cancer is a hopeful suggestion; an instance was quoted in which a husband had rodent ulcer, his wife died with cancer of the breast, and a gentleman who lived in the same house died of cancer of the tongue. In speaking of congenital deformities the lecturer referred to a curious foreshadowing of harelip in one generation by poor development or absence of the lateral incisor tooth in the previous generation. At a recent meeting of the Society for the Study of Disease in Children a case of hydrocephalus was reported by Mr. C. A. Morton, in which subdural drainage was attempted. This operation, introduced a few years ago, consists in connecting the interior of the lateral ventricle with the subdural space by means of a rectangular metal tube, one arm of which passes through the cortex into the ventricle while the other arm lies free in the subdural space. The tube is ligatured in this position so it shall not become displaced, and the wound in the skull is then closed by replacing the dura mater and scalp in position. Theoretically the cerebrospinal fluid should escape thus from the interior of the brain into the subdural space, from which, according to certain physiological observations, it should be conveyed by the Pacchionian bodies away into the lymph paths and so removed. Mr. Morton's case showed, however, that, excellent as the theory is, the actual result may be far less satisfactory. The head continued to increase in size after the operation and at autopsy it was found that the ordinary internal hydrocephalus had been converted into an external hydrocephalus. The fluid had remained unabsorbed in the subdural space. The operation has now been performed many times, and although success has followed it, the result has usually been simply to hasten death.

Amongst the events of the past month there is one which calls for mention as having excited considerable public interest in London. The King and Queen went to St. Bartholomew's Hospital on July 6th and laid the foundation stone of the new wing of the building which has just been begun, and which is to accommodate the out-patient and casualty departments and certain special departments. The streets on the route were gaily decorated, and no less than 3000 persons witnessed the ceremony in the hospital.

As I close this letter a general pilgrimage of the medical profession to the shrine of learning at Oxford is in progress, and next month I hope to be able to give some account of the meeting of the British Medical Association there, for several subjects of practical importance in therapeutics are to be discussed.

—THE—

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THE PROBLEMS OF THERAPEUTICS.[1]

BY SIR LAUDER BRUNTON, M.D., D.Sc., LL.D., F.R.S.,
Consulting Physician to St. Bartholomew's Hospital, London.

MR. PRESIDENT, LADIES AND GENTLEMEN—The subject of my lecture to-day is "The Problems of Therapeutics." My audience is a select one of persons interested in science and art. But science in these days has branched out so widely that it is impossible for any single person to be acquainted with every department of it, and the terms used by a zoölogist may be unintelligible to a mathematician, or *vice versa*. There are many here whose researches have led them far into abstruse departments of science, and if they were speaking I should gladly welcome a few introductory words from them on the very rudiments of their science in order to help me to understand a disquisition on the more advanced parts of their subjects.

Judging others by myself I think they may be glad if I do the same, and I must beg the indulgence of those who are acquainted with medical science if this lecture should seem to be unnecessarily rudimentary. By therapeutics we mean the methods of healing.

In the great staircase of St. Bartholomew's Hospital in London there is a large picture by William Hogarth repre-

[1] Address delivered before the Section on Therapeutics and Pharmacology at the International Congress of Arts and Science at St. Louis, Sept.

traveler is seated on the ground, the good Samaritan is pouring oil and wine into his wounds, while close at hand is a dog busily engaged in licking a cut which he has received in the fray. Both dog and man are engaged in solving as far as they can two of the primary problems of therapeutics, viz.: (1) How to relieve pain, and (2) how to restore health. For disease is want of ease, and "health" is only one form of the word "whole," by which we mean that a thing is entire and neither cut, broken, nor cracked. The closure of wounds is one form of restoring "wholeness" or "health" to the body, but it is by no means the only one, for the vital organs lie below the surface and it is with disturbances of their functions, even more than with external wounds, that therapeutics, or the science and art of healing, is chiefly occupied. As exemplified in the dog or in the Good Samaritan therapeutics is simply an art. Certain things are done because they have been found to do good before and so they are repeated again and again, but neither the dog nor the Good Samaritan understand the reason why their procedure is useful. It is only when we learn the reason why, that an art becomes converted into a science. Therapeutics in its primitive form is one of the simplest of all the arts, and is practiced by animals as well as by man, but as a science it is one of the most complex and most difficult of all, because it requires a knowledge of the functions of the body in health, or physiology, of their changes in disease or pathology, of the action of drugs upon the body or pharmacology, and of chemistry, physics and other sciences on which physiology, pathology and pharmacology are based. Finally it requires the practical power of recognizing from the symptoms (in any individual case) the nature of the pathological changes present and the ability to apply the right methods of treatment in order to counteract these changes and heal the patient. It is evident that such complex knowledge as this must be very difficult of attainment, yet nevertheless the change of therapeutics from an art into a science is progressing with considerable rapidity. In a text-book on the subject which I published eleven years ago, I mentioned the use of quinine in ague as the best example of the art of therapeutics whereby we could cure a disease of which we did not know the nature, by a remedy whose curative action we did not understand. Since that time, however, we have learned that ague depends upon the presence of a foreign organism in the body and that the benefits obtained from quinine are due to its poisonous action upon this intruder. This malarial parasite is only one of the many minute organisms which mar or destroy the health of the human body. Minute organisms or microbes are most useful in their proper place, and without them the world would be uninhabitable, because they are the natural scavengers which produce putrefaction in dead plants and animals and thus bring about their return to dust, fitting them for new life instead of allowing them to encumber the ground. But not content with this function some of them proceed to invade living beings, attacking not only the weak but even the strong, and by growing and multiplying within them weaken or destroy their hosts.

One of the great problems of therapeutics then is to defend the body from attacks of microbes. This may be done either (*a*) by weakening or destroying the microbes themselves, or (*b*) by increasing the power of the organism to resist them.

It is convenient to speak of the body as a whole when we are discussing its invasion by microbes, but we must not forget that the body, like a country, is composed of many parts. The interests of the different parts are by no means identical, and while they generally act together for the common good they may not always do so, and either by their sluggishness and inaction or by their mischievous activity they may do harm instead of good to the body as a whole. What is requisite for health is a harmonious action of all the different parts of the body, or as St. Paul very well puts it, "And thus all the body framed and knit together through that which every joint supplieth, according to the working in due measure of each several part, maketh the increase of the body unto the building up of itself" (Ephes. 4, 16, revised vers.), so "that there should be no schism in the body and that the members should have the same care one for another." No

doubt in their long wanderings together Luke, the beloved physician, discussed physiology largely to Paul, and his expression is so good that I have quoted it now. Just as the people of a country is composed of individuals, so the body is composed of numerous cells. The whole class of microbes consists of isolated cells which are like a nomad population, each individual complete in himself, and ready to form a swarm for attack and invasion. The cells which compose the body, on the contrary, are mostly fixed, and differ from each other in structure and function, but ought all to act together for the common good. Each cell lives in the fluid which surrounds it, blood or tissue juice, from which it takes what it needs for its own nutriment and pours back the products of its tissue activity,

which may be partly waste and partly manufactured products of the utmost utility.

In order to have a complete comprehension of therapeutic problems it is necessary that we should know something about the life of the cell, because the life of the whole body depends upon that of the cells which compose it, and the cure of disease and preservation of life depend on our power to influence cell life. The processes of life are to a certain extent the same in the human body as a whole, in the cells which compose it, and in the smallest living organisms, or microbes as they are termed. They all digest and assimilate food, they all breathe, and they all excrete waste products. A knowledge of the processes of life in man helps us to understand them in low organisms, and *vice versa*. The use of pepsin and pancreatin in indigestion is so common that almost everybody knows that these substances have the power of dissolving meat and that pancreatin converts starch into sugar. Everybody knows that these are got from the stomach and pancreas of animals, and that it is by similar substances formed in our own digestive canal that we are able to dissolve the food we eat and render it fit for absorption. It has recently been found that pancreatic juice, as poured out by the gland which secretes it, is very slightly active, but it is made active by another ferment secreted from the intestine which is called enterokinase. The pancreatic juice contains several ferments; that which acts upon meat is called trypsine and in its inactive state it is called trypsogen. The action of the enterokinase on the trypsogen may be compared to that of a man who opens the blade of a knife and renders an instrument previously inactive very active indeed. If trypsine were absorbed into the blood unchanged it might digest the tissues themselves, and it must be rendered again inactive. This seems to be effected by certain substances present in the blood, which have a so-called "anti" action upon the ferments and render them again inactive. But though the digestive ferments might do harm if present in the blood in an active form and in large quantity, yet it is probable that all the cells of the body digest the food which is brought to them by the blood and tissue juices and break up this food for their own use by ferments which they contain themselves. Thirty years ago I advanced this view and supported it by the fact that I was able to extract from muscle a substance which decomposed sugar. This observation received but very little attention at the time, but recently German literature is full of papers which support my views and confirm my results, although their writers appear to be in ignorance of my work. Fifteen years ago, along with Dr. Macfadyen, I showed that bacteria not only excrete ferments by which the soil in which they are growing is digested, but that they are able to modify these ferments in accordance with the soil so as to digest either proteid matter or sugar. Curiously enough, within the last few years the pancreas in animals has been shown by Professor Pawlow to have similar powers. No individual microbe has received so much attention as the yeast plant, and no poison which is formed by any of them has done so much harm as the toxin or poisonous substance produced by yeast, for this toxin is alcohol, whose poisonous action has given rise to the general term intoxication. The yeast plant, when grown in sugar, excretes into it a ferment, invertase, which splits up cane sugar or saccharose into two other sugars, dextrose and levulose. The yeast plant may be separated from the solution of sugar by filtration, but the ferment which is already excreted will remain in the filtrate and may still continue to act on the sugar just as pepsin may dissolve a piece of meat in a jar although the pig which produced it is dead and gone. But no alcohol will be formed by this excreted ferment. Alcohol is produced by something contained within in the body of the yeast itself, and its production was formerly supposed to be due to so-called vital action. It has now, I think, been proved that alcohol is produced by the action of a ferment which is contained within the body of the yeast cell and is not excreted from it so long as the cell is intact, but only passes out after the cells have been crushed into fragments. Whilst the cell is alive and intact it absorbs the sugar into its interior, breaks it up there, and forms the alcohol or toxin. Other microbes in like manner absorb nutriment and may excrete toxins,

though the nutriment and toxins of bacilli in general differ from those of yeast.

We see therefore that:

1. Cells excrete ferments.

2. They excrete poisons formed within their bodies; and

3. When they are broken up they may liberate other ferments.

The ferments excreted by microbes apparently prepare the substance in, or on, which they are growing for assimilation, and the ferments within the cell body decompose it further in the process of growth. To make this clearer I may perhaps be allowed to use a very crude illustration, and compare the ferment which is poured out by a bacillus to the saliva which is said to be poured out by the boa constrictor on its victim to facilitate deglutition, while the ferments within the microbe may be likened to those within the serpent's stomach by which actual assimilation is effected. It is probable that all cells, whether they be wandering microbes or cells coördinated in an organism, prepare and assimilate their nutriment by means of ferments; and as I have already mentioned, not only have bacilli the power of excreting ferments but apparently they are able to adapt the ferment which they excrete to the soil in which they are growing, and in much the same way as the pancreas in animals modifies the ferments it forms according to the food which it is required to digest.

Not only is digestion carried on in the stomach and intestines by the ferments which are now so well known even to the general public, pepsin, pancreatin, etc., which dissolve the ingested food so that it is readily absorbed into the circulation and carried to every part of the body, but the cells which compose the various parts of the body, muscles, nerves and glands, probably carry on the functions of their life by means of ferments also. By means of these they alter and assimilate the various substances which are brought to them by the blood and juices of the body, and after having supplied their own wants they throw into the circulation the altered residue of their pabulum as well as the substances which they have themselves formed in their processes of growth. In fact they probably repeat what we have already seen to occur with yeast, which not only alters the sugar in which it grows by a ferment which it excretes, but also produces carbonic acid and alcohol by means of a ferment which remains within the yeast cells so long as these are intact, and only becomes liberated when these cells are broken up.

An excessive quantity of their own products is usually injurious to cells, and too much alcohol will stop the growth of yeast. At the same time these products are frequently very nutritious for cells of a different sort, and alcohol furnishes a most suitable pabulum for the organisms which produce vinegar. Vinegar in its turn is toxic to the microbe which produces it, but serves again as a soil for another which gives rise to a viscous fermentation. By the successive action of these ferments a solution of sugar may produce, first alcohol, secondly vinegar, and thirdly ropy mucus. In this particular series each microbe produces a substance injurious to itself but useful to its successor. This is however not always the case, because a cell may produce a substance not only injurious to itself but injurious to other cells, and alcohol in large quantity not only kills the cells of yeast but kills other cells as well. Similar conditions occur within living organisms where the cells composing the different parts are connected together and pass on the products of their life from one cell to another by means of the circulation of blood and tissue juices. The secretions of one part may be, and indeed generally are, useful to other parts of the organism, and so long as no part sins either by deficiency or excessive action the whole organism maintains a condition of health. But this is not always the case, and health may be destroyed by (*a*) excessive, (*b*) defective or (*c*) perverted action of one or more of the parts composing the body.

But health is even more frequently destroyed by the invasions of organisms from without. When these organisms fall upon an open wound they tend to grow and multiply rapidly, they secrete ferments and form poisons which enable them to destroy the tissues upon which they have fallen, and then finding their way into the circulation and being carried to all parts of the body they kill the animal which they have attacked.

One of the great problems of therapeutics then is to discover how best to

defend ourselves against the attacks of microbes. In Hogarth's picture we see two methods by which this is done. The dog licks the wound it has received and thus removes from it any pathogenic organisms which may have lighted upon it. By insuring their absence it renders the wound *aseptic,* and asepsis, which is another word for excessive cleanliness, insuring the absence of organisms, is one of the great measures by which the triumphs of modern surgery have been achieved. The treatment applied by the Good Samaritan to the wounds of the traveler is somewhat different, for he pours in wine, the alcohol of which may hinder the germination of any microbes on the wound and thus prevent them from producing sepsis. This method, which in the hands of Lister has revolutionized surgery, is termed *antiseptic* as distinguished from the *aseptic* method used by the dog. There is no doubt that the aseptic method has distinct advantages over the antiseptic method as applied to wounds because any substance which injures or destroys microbes will likewise injure the living cells of that part of the body to which it is applied. For this reason the aseptic method can only be employed to a very limited extent against microbes that have already entered the interior of the body, although it may sometimes be used, as for example in the treatment of dysentery, where repeated doses of saline purgative are now given so as to wash out from the intestinal canal the microbes which give rise to the disease, and even in ordinary diarrhea, where a purgative is employed to get rid of both the microbes and the poisons they have formed. More commonly, however, we have to depend on antiseptic methods either entirely, or as an adjunct to asepsis, and a study of the action of various chemical substances on microbes has led to the introduction of a whole series of antiseptics and indeed to their actual synthetic formation, the problem to be solved being, how to produce a body which shall destroy the microbes most efficiently and at the same time shall have the least injurious action upon the body of the animal invaded. Nor is it only inside the body that the action of antiseptics is desired. The search for preservatives for milk, meat, fish, vegetables and fruit which shall be at the same time efficient and innocuous is one constantly going on at present. Asepsis is one of nature's methods of defense. When irritating substances get into the eye a flow of tears occurs to wash them away, from the nose and respiratory passages they are ejected by sneezing or by cough, and from the stomach or intestines they are removed by the vomiting and purging to which they themselves give rise. Even in the addition of preservatives in milk we seem to be following the example of nature, because Andeer has found resorcin, which is an antiseptic, in the fresh milk of cows. As Metschnikoff has shown, another method adopted by nature of removing and destroying infective microbes is to bring down upon them a host of white blood-corpuscles or leucocytes which swallow up and destroy them. The more leucocytes that the organism can bring to bear upon the intruders the better chance it has of overcoming them. One problem therefore in therapeutics is to increase leucocytosis. At present we have comparatively few drugs that possess this power, cinnamate of soda being perhaps the most active, but one of the problems to be solved is to find other substances which will do this to a greater extent than at present. The microbes on their part are ready to attack the leucocytes and fixed cells by means of toxic secretions or toxins, and another of the defensive mechanisms which the organism adopts is to form *antitoxins,* as the antidotes to these toxins are generally termed. Some of these defensive bodies or alexins actually destroy the invading microbes themselves while others simply neutralize the poison or toxins they have formed. The nature of such defensive substances has been examined by Ehrlich, to whom we owe much of our knowledge concerning them. It is very complicated, and we do not yet know the precise mode of production of these antitoxins, but it is a curious fact that in many plants we find two poisons which are antagonistic in their action and which are to a certain extent antidotal to one another. Thus in jaborandi we have two alkaloids, one of which, pilocarpine, stimulates secretion enormously, and the other, jaborine, which paralyzes secretion, so that an extract of the jaborandi plant containing them in proper proportion

might appear inactive although it contained both alkaloids in considerable amount. The same is the case with poisonous mushrooms, which contain a poisonous alkaloid, muscarin, which produces severe irritation of the intestine, and an atropine-like substance which antagonizes it. Opium likewise contains alkaloids having very different actions, some being almost purely narcotic and others purely convulsant. The animal body seems to have a wonderful power of accommodating itself to the action of many poisons, and this is very marked indeed in the case of opium. Many persons who begin with a small dose increase this gradually to an enormous extent, so that they are able to take with impunity many times the ordinary lethal dose. The organism has a certain power of storing up antidotal substances within itself, and Dr. Cash and I were able, by feeding animals with potash, to render them less susceptible to the poisonous action of barium; but except in the case of arsenic the organism seems to have but little power of becoming accustomed to inorganic poisons. It is different, however, in the case of organic poisons, as shown by the resistance to the action of alcohol acquired by habitual topers and to morphine by habitual opium eaters. A similar resistance may be acquired to snake venom and to the toxins produced by microbes, and here it does not seem to be merely that the cells of the organism become accustomed to the poison, but that the organism forms an antidote, not only in sufficient quantity to neutralize the poison which is introduced, but actually in such superabundance that serum separated from the blood of an animal which has become immune to the action of snake venom or of toxins will neutralize the effect of the venom or toxins in another animal. So great is this power that Sir T. R. Fraser has found by inoculating an animal with gradually increasing doses that it may at length completely resist the action of fifty times the ordinary lethal dose of snake vemon; and in an experiment of Monsieur Calmette I have seen an animal which had received the serum from such an immunized animal remain healthy and well, although another one which was inoculated at the same time and with the same dose of snake venom was dying

When horses are inoculated with successively increasing doses of the toxin of diphtheria, their blood acquires a high antitoxic power, and the use of the serum of such blood injected into patients suffering from diphtheria has robbed this disease to a great extent of its awful power. Hydrophobia is another disease which has been to a great extent deprived of its terrors by Pasteur's method of treatment. This differs in its plan from that used in diphtheria. In diphtheria the bacilli probably form a ferment which produces a deadly poison by exercising its digestive powers on the material it finds in the body. This poison is neutralized by the antidotal serum which is formed in a horse and is injected into the patient. In hydrophobia we have not been able to isolate the virus, but from its mode of action we suppose it to be a minute organism. This virus takes a long time to act in man, sometimes three weeks but usually six weeks, but when cultivated successively in rabbits it becomes very virulent indeed and acts much more quickly. It apparently finds its chief seat in the spinal cord. When the cord is exposed to air the virus gradually becomes weakened, and by injecting with an extract of very weak cord on the first day and with a stronger extract on each succeeding day the human body becomes accustomed to the virus and forms its own antitoxins. Thus by the time that the poison inoculated by the original bite of the rabid animal has time to develop its action the person has become immune.

One of the most important problems of therapeutics, therefore, is to render the human body immune against pathogenic microbes, against the ferments they form and the toxins they produce. The two examples I have already given show how the toxins and possibly the ferments may be rendered innocuous by injecting antidotal sera and thus producing what is called *"passive immunity,"* or by exciting the body to form antidotal substances itself and thus produce what is called *"active immunity."* Both these methods have been used and are being used in regard to other diseases, especially in those produced by micrococci of various sorts which give rise to suppuration and inflammations. One great difficulty in the way, however, is that the antidotal serum

cient against the disease produced by another, and so much is this the case that it would almost seem as if an antidotal serum would require to be made for each particular patient. Nor are the sera altogether innocuous themselves, because their injection may be followed not only by annoying rashes on the skin but by general swelling of the body like that from advanced kidney disease, or by painful swelling of the joints almost like rheumatic fever. One of the problems of therapeutics therefore is to obtain anticoccic sera which will not produce any unpleasant or dangerous symptoms. Another is to confer on the tissues of the body the power of resisting or destroying microbes, their ferments and their toxins, and thus protecting themselves, or in other words acquiring immunity against the diseases which the microbes would produce. In considering this question it may help us if we remember that the products of our own digestion are poisonous and if the albumoses and peptones formed by the digestion of a beefsteak in the stomach were injected directly into a man's veins they would kill him, whereas when changed by the cells of the intestine and liver in the process of absorption they nourish and strengthen him.

The complexity of toxins and antitoxins is easily understood when we consider that they are probably all formed by the splitting up of albuminous molecules, and thus vary enormously, just as the splinters of a broken glass vary in size, shape and in power to puncture or cut.

(*To be concluded.*)

ON THE RELATION OF THERAPEUTICS TO OTHER SCIENCES IN THE NINETEENTH CENTURY.[1]

By Oscar Liebreich, M.D. Berlin, D.C.L. Oxon., Professor of Pharmacology in the University of Berlin.

Every political historian will prefer to trace the development of a period of history from one distinct event. A chronological introduction cannot be of such importance to him as a historical survey, in which events of great moment form the basis of a new development.

What is true of political evolution applies also to the growth of every branch of natural science and medicine. The first year of a century, though filling men with joyful confidence and new hopes, has not the same attraction for the investigator; and yet, in order to obtain a general view of the growth of the different branches, it is desirable not to lose sight of this idea, but to consider all the stages of progress in common from a certain point of time, and thus the study of the history of therapeutics must also be subordinated to this aim.

Although the evolution of the nineteenth century has frequently been threatened by heavy political clouds, we have seen them often pierced by the sun of progressive science, which, especially in that century, has called forth a fertility of culture such as has scarcely been witnessed in any previous period of one hundred years. The past century more than any other has been distinguished by the multitude of newly discovered facts in natural science, as well as by the perfection and extension of the ideas of great discoverers of the previous century.

It is the age in which the greatest progress in natural science has been made. The vast numbers of new discoveries in medicine have lessened, or even almost suppressed, on the part of many persons, the feelings of admiration for each new acquisition.

The new phenomena and experiences which confront us on all sides surpass the wildest dreams described in former centuries as the eccentricities of fanciful minds. The abundance of material compels our admiration and allows the astonished eye no time to gaze long at one occurrence, for new impressions already crowd it out.

The nineteenth century has spoiled us; our demands for new acquisitions increase, and we grow impatient to know more. In this unsettled state the laborious work of the individual often seems lost, but the true scholar is buoyed up by the gratifying knowledge that mighty buildings can only be constructed of a mosaic made up of single stones. Yet, truly, humanity often settles down in a

[1] Address delivered before the Section on Therapeutics and Pharmacology at the International Congress of Arts and Science at St. Louis, Sept. 24, 1904.

new building without admiring either the work of the architect or his material.

Moreover, the capability of enjoying nature and whatever we have added to our knowledge of the universe by laborious experiments does not appear to be a natural gift of man. Only education and culture can awaken the enjoyment of what is and of what is about to be. Mighty natural phenomena, indeed, fill the casual onlooker with admiration, but the observation of what is harmonious in nature, and the capacity of assimilating it for our own culture, can be gained only through education. This also holds good of art, and it is even more difficult in science. Since the uneducated majority is often inclined to pass by the greatest events with indifference, the nineteenth century has spared no pains to inform humanity of all the great innovations, to educate them, and thus to gain friends for the progress of civilization. This, indeed, is the object of your Congress.

There are various ways in which therapeutics (and it is here chiefly a question of pharmacodynamic therapeutics, that is such as concerns itself not with mechanical means but with chemical-physical processes) may develop.

New knowledge of the conditions of life of the organism often lead to remarkable discoveries in therapeutics. Thus physiology, especially the functions of the different organs, is of the highest importance for the progress of therapeutics.

A striking example of this is furnished by digitalis. Originally this plant was simply a popular remedy, which, like many substances in use among the people, proved efficacious in the case of many diseases, while, of course, of no avail in others.

When William Withering, in 1785, undertook a careful examination of digitalis it was used for phthisis, dropsy, and scrofula, it is true, and its power of slowing the pulse was known, but was not utilized therapeutically. A proof of how little significance was attached to these purely clinical experiments may be found in the changes as to the admission of digitalis to the London Pharmacopœia. In the year 1721 it was included; in 1746 rejected and not reaccepted until 1778.

Now in the year 1846 Weber made the surprising discovery that the vagus nerve has an inhibitory influence upon the heart, *i. e.*, that exciting this nerve causes slower pulsation, and that cutting it occasions extreme acceleration of the action of the heart. This decisive experiment formed the basis of Traube's clinical investigations, and he was able to prove that the effect of digitalis on the heart corresponded to the excitation or section of the vagus nerve. This fact has been utilized clinically in diseases of the heart, arteriosclerosis, and dropsy—and now upon a firm basis—so that digitalis has emerged from its former position of uncertainty and taken a place among the efficient and reliable remedies, and we can safely say that it will not again disappear from the Pharmacopœia, at any rate not owing to any uncertainty as to its effect.

Such investigations have now been undertaken with a number of other preparations, and on a large scale, such as, for instance, the clinical researches of Sir Lauder Brunton on "casca" (erythrophleum), and of Sir T. R. Fraser on Strophanthus hispidus, a plant similar to digitalis, but differing in its effect on the vasomotor system, and which was also soon adopted in therapeutics. Much the same may be said of atropine, which chiefly through the knowledge of its physiological effect on the iris, on the non-striated muscular system and the glandular secretions, affords us an exact indication of its scope of utility in disease.

Thus we have here a source of fresh observations. Ofter the functions of the organism are affected in an isolated manner that we should scarcely have thought possible—for instance, by yohimbin.

This physiological method is applicable to all chemical bodies, and the progress in our knowledge of curative powers depends solely on the progress of experimental physiology.

The physiological action, however, does not always remain within the limits of what is normal, for it may sometimes become pathological. This was remarked by various scientists as early as the middle of the 18th century, and shortly before the beginning of the 19th century (1799) A. Fr. Hecker expressed this view in his "Physiologia Pathologica"—*i.e.*, in "the theory of the composition and functions of the human body and its different parts in an abnormal condition."

How differently we may view physiologically active bodies can best be seen in the blood. But here, too, we observe that a rational system of therapeutics only became possible in the 19th century after a knowledge of the physiological effects had been gained. Berzelius was the first to recognize the presence of iron in the blood. The discovery of a ferruginous coloring matter of the blood, hemoglobin, did not follow until much later. It is true that in 1854 Wöhler declared globulin and hematin to be contained in the blood corpuscles. But Funke (1852) and Lehmann (1853) had already established the fact that the coloring matter of the blood, hemoglobin, is a distinct crystallizable substance, which is capable of absorbing and giving off oxygen. Hemoglobin, we may say, is, to a certain extent, the quintessence of the respiratory activity. This function may be destroyed by inhaling carbonic oxide, which enters into so close a combination with the coloring matter of the blood that its respiratory function ceases. Thus blood in such a state is a menace to life which cannot be obviated by any drug, but we are able since the respiratory function of the blood has been understood to avert this danger in most cases by removing the poisoned blood and transfusing fresh blood.

The greatest hopes for the further development of therapeutics are raised by the fact that chemical substances are capable of restoring pathologico-physiological processes to a normal state. Here we may cite the antipyretics, which are able in the most striking manner to reduce to the normal state a rise of temperature, that is, a febrile phenomenon.

The drugs just mentioned are therefore of great importance in therapeutics as symptomatic remedies. Of course, they are in no way able to destroy the cause of disease, but merely alleviate or avert injurious symptoms. For the physician, however, this very quality is of paramount importance in the majority of cases. The cause of disease may disappear through the spontaneous healing process of the organism, while the symptoms are removed which, had they been left alone, would inevitably have led to the death of the patient. Yes, we may say that it is one of the greatest aims of therapeutics to treat disease symptomatically, for we must endeavor to ease the sufferings of humanity, and the great advantage of this method of healing becomes specially evident when the cause of sickness cannot be destroyed by any remedy hitherto known. This may best be demonstrated in the treatment of poisoning. If, for instance, through a mistake, or for any other reason, a deadly dose of strychnine enter the system, the sufferer will expire under the symptoms of suffocation, caused by the convulsive contraction of the respiratory muscles. As, however, we are enabled to arrest this spasmodic contraction by means of chloroform, chloral hydrate, and other drugs, we can thus give the system time to eliminate the strychnine causing the illness. This being entirely thrown off, the morbid phenomena also disappear, and complete recovery soon ensues. It is possible, though as yet unknown, that purely symptomatic remedies may also influence the cause of disease.

At the beginning of the 19th century chemistry was still of little service to the science of medicine. True, Lavoisier's greatest discovery in regard to metabolism in the organism was known, that is that the oxygen of the air causes combustion, and when inhaled accomplishes the same object in the system. This must have given medical men an entirely new perception of the processes of life, but the time had not yet arrived for experimental work on this subject.

Even at this time numerous elements were known, 30 in number,* whereas at the end of the century 76 elements had been found. A number of these elements were made use of in therapeutics in a pure state or in combination, without our being able to base their application upon rational, theoretical hypotheses, as, for instance, in the case of iron and its compounds, the use of which extends to the remotest times. On the other hand, there were among them elements employed as drugs, such as antimony, which first came into use in the middle ages, and which may be cited less as a proof of the thera-

*1. Hydrogen. 2. Oxygen. 3. Carbon. 4. Sulphur. 5. Phosphorus. 6. Chlorine. 7. Fluorine. 8. Boron. 9. Antimony. 10. Silver. 11. Arsenic. 12. Bismuth. 13. Cobalt. 14. Copper. 15. Tin. 16. Iron. 17. Manganese. 18. Mercury. 19. Molybdenum. 20. Nickel. 21. Gold. 22. Platinum. 23. Lead. 24. Tungsten. 25. Zinc. 26. Uranium. 27. Titanium. 28. Chromium. 29. Tellurium. 30. Nitrogen.

peutic value of this metalloid, than of the antiquated prejudice of a French faculty which absolutely refused to acknowledge any "drug," owing to its predilection for blood-letting. The rage of dogmatic physicians may be recognized in the words of the anathema against Torpet (cf. O. Liebreich "Die historische Entwicklung der Heilmittellehre. Lecture, Berlin, 1887).

On the other hand, the science of therapeutics placed great hopes in the isolation of alkaloids, which marked the beginning of the century. This era began with the recognition of the importance of morphia by Sertürner in the year 1804. Then followed the discovery of nicotine by Vauquelin in 1809, quinine in 1811, cinchonine in 1820, and of strychnine in 1818. This, at any rate, suggested the method of obtaining from extracts, frequently encumbered by useless matters, the active principle, and making it available for therapeutics, and hence a certain practical utility must even nowadays be accorded to pharmaceutical chemistry.

As regards a knowledge of the mode of action, however, the problem not only lies in the chemical composition and recognition of the substance employed, but also in the chemism of the organism. Outside the organism it is a lifeless substance, but in the system it is not only the substance itself but its metabolism and manner of action which must be taken into consideration. The theory of metabolism can only be of decisive value for therapeutics when not only the properties of the drug applied, but also the chemical action of the organism, are so far known as to enable us to judge of their mutual effect. For this reason, of course, a knowledge of the chemistry of the human system is of the greatest importance. Just a year previous to the beginning of the 19th century the urea which appears in well-formed crystals in the human organism was discovered by Fourcroy and Vauquelin. This fact, certainly, did not appear so strange, since crystalline matters had already been obtained from plants, but even in the beginning of the century the idea was still firmly rooted in the mind of the naturalist that these substances could only appear as the products of vital energy. This presented itself to the minds of men of that time as an entirely distinct force which, independent of physical and chemical laws, manifested itself in a characteristic form in the organism. There is no discovery which has so often been quoted in the interest of the medical and other biological sciences as the observations of the chemist Wöhler, who, in 1828, observed the formation of urea in a substance obtained outside of the system, namely, ammonium cyanide, by the transposition of atoms. But if we rightly consider this grand discovery, which completely refuted the followers of the theory of vital energy, it would still, perhaps, be possible, in spite of this discovery, to undertake the defence of the theory of vital energy as something beyond the laws of natural science, for neither Wöhler's synthesis, nor the manner of formation of urea from carbonyl chloride and ammonia, or from ethyl carbonate and ammonia, or from cyanamide by hydration, or from ammonium carbonate, as well as from leucine and from other substances of the organism, gives any actual explanation of the formation of urea in the system. The synthetic product is identical with the product of the organism, but the synthesis, or rather the formation, of urea in the body takes place in accordance with laws, the exact nature of which we do not fully know even at the present day. This is, indeed, the case with a large number of other substances derived from animals or plants. Although the chemical constitution of substances was constantly more and more exactly defined in the course of the 19th century, the manner of formation in the organism still remains hidden from us. We frequently find it stated that we must not simply compare the processes of the organism to the test-tube experiment of the chemist. There is no doubt that processes of metabolism take place within the body for which the synthesis performed outside of the organism gives no explanation. From my somewhat dissentient attitude in regard to the conclusions drawn from Wöhler's experiment, I might for a moment be thought to favor the view that the activity of the organism in the form of vital energy is beyond the laws of natural science, but that is not the case. Even if in synthetic experiments other means are employed than are available

within the organism, the supposition is justified by the possibility of synthesis, that the organic processes occur in accordance with purely physical and chemical laws, but that other conditions not present in test-tube experiments also play a part.

Here we must turn for a new mode of thought to Schwann's magnificent discovery of the animal cell. Through it the anatomical conception of the organism was placed upon an entirely different basis. As human tissues consist of cells, and the entire development of man results through cell activity, this must naturally lead us to assume that the purely chemical part of human existence takes place in as many cells as the individual possesses. That which in chemistry we describe as a reaction must, if we leave out of the question the chemical processes in the digestive tract, take place in small separate spaces, such as the chemist never employs for his experiments. The chemist does not usually assume that reactions occurring in such exceedingly restricted spaces differ from those which take place in the vessels used for his operations. It will be the task of the biologist to investigate whether this chemical action in the cells undergoes any modification through limitation of space.

I have been able to prove in the course of investigations on the "dead space in chemical reactions outside the organism" that powerful phenomena of friction take place here. This could not be definitely proven experimentally in the case of all reactions, but sometimes it could be shown that if the space enclosing the fluid be diminished, the reactions in comparison with those which occur in larger spaces are retarded, if not completely arrested. The objection might be raised that in these experiments the retardation or arrest of reaction was generally due to the nearness of solid walls, but it was observed that the same phenomenon is noticed when the boundary of the fluid is only formed by surface tension, for the tense surface behaves like a firm elastic membrane toward the fluid, as is the case with many cells. The results showed that whenever the friction of the liquid increased the chemical reaction was retarded. This hindrance of the reaction in small spaces, which differs in the case of different reactions, naturally permits the conclusion that, contrary to what happens in large spaces, in small ones entirely different reactions will result. Of course, this observation can only serve as the initial proof that the chemical action in the cells is unlike that which occurs in test-tube experiments. We see that here also the argument for the acceptance of the theory of vital energy which I pointed out to you as possible, is refuted.

As regards drugs and their absorption these chemical processes probably play an important part, for we observe that reactions occurring outside of the organism do not take place within it, and on the other hand, combinations arise which are difficult to produce externally. Here we may mention, by way of illustration, the facility of decomposition of common salt into hydrochloric acid and alkali. Moreover, I should like to remind you that, for example, in the toxicological processes in poisoning with carbolic acid we were entirely unable to foresee that the sulphuric acid of the organism forms with the carbolic acid a complex sulphuric acid, which, being non-poisonous, arrests the toxic effects of the carbolic acid.

Starting from this consideration, it does not appear strange that a number of substances which, even when much diluted, have a destructive effect on bacteria, manifest when taken up into the system no trace of disinfecting power, such as, for instance, phenol itself and corrosive sublimate in cases of anthrax.

The simplest example that the discovery of the cause of disease is by no means decisive in therapeutics may be seen in the development of the trichina. It is a humiliating fact that we are entirely powerless against this enemy. Even the female trichinæ developing in the intestine after the consumption of meat infected with these parasites cannot be made innocuous by any known anthelmintic, and we are not even able to expel these intestinal trichinæ by means of purgatives. The embryos wander irrevocably into the muscular tissues to destroy the organism, or by encapsulation remain permanently in the man or animal. Even in this process of calcification of the trichinæ we are quite powerless to intervene.

(To be concluded.)

A CONSIDERATION OF SOME OF THE METHODS FOR THE TREATMENT OF CANCER OF THE RECTUM.[1]

By Lewis H. Adler, Jr., M.D.,
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As an introduction to what I trust may lead to a general expression of opinions, I have taken the liberty of presenting a brief synopsis of my views regarding some of the various methods advised for the treatment of cancer of the rectum.

The conscientious surgeon, when brought face to face with the problem of what measure is best to advise in a given case of rectal cancer, has, as a rule, a most difficult task to perform, and one which in the conclusions reached may mean either the prolongation or the speedy termination of a life.

The measures for the treatment of the disease under discussion to which I desire specially to invite your consideration are: (1) The use of the *x*-rays; (2) radium; (3) extirpation; and (4) colostomy.

1. *X-rays.*—The favorable reports of the employment of the *x*-ray in the treatment of cancer in other portions of the body very soon naturally attracted the attention of the proctologist, and it was not unreasonable to hope that similar encouraging results might follow its use in malignant neoplasms of the rectum. My personal experience with this therapeutic measure has been a most limited one, being confined to three cases. In every instance, however, I have had occasion to regret its employment. All of the patients were in the advanced stages of the disease when first seen by me, and were beyond the point when any hope could be entertained from a radical procedure, such as an attempted extirpation. All the growths were of a considerable size and were situated within the rectum from two to three inches above the anus. In character they were of the adenocarcinomatous variety. The diagnosis in two of the cases was confirmed by competent microscopical examinations. One of the cases was complicated by the presence of multiple fibroids of the uterus. Two of the patients were males, aged respectively forty-three and sixty-one. The woman's age was about forty. The treatments with the agent under consideration were carried out by experienced authorities. One patient, the one aged sixty-one, died in two months after beginning the use of the *x*-rays, and both of the other cases became so noticeably worse after periods varying from six weeks to two months that I felt obliged to advise the discontinuance of the treatment. The occasion for advising the cessation of the use of the *x*-rays was the profound toxemia produced. The effects of the treatment noted were as follows: After a few weeks of treatment the patients experienced more uneasiness in the rectum and were obliged to go to the toilet much more frequently than formerly. Tenesmus was materially increased. These symptoms were followed, at varying intervals of time, by creepy or chilly sensations along the spine; by nausea, more or less pronounced; by a diminution or absence of the appetite; by an elevation of temperature (around 101° in the evenings and several degrees less in the mornings); by a progressive loss of strength, two of the patients being confined to the house or to bed shortly after starting the treatments, while prior to that time they had been able to walk or drive; and finally a pronounced cachectic condition was noticeable.

One of the patients made a change of physicians, and the other, the female, underwent a colostomy, much earlier, in my judgment, than otherwise would have been necessary had the case been allowed to run the natural course of the disease.

In all of the cases the size of the growth was undoubtedly lessened by the treatments. Peristalsis was increased; but in one case either it was not increased enough or else the size of the growth would not permit of a satisfactory evacuation of the bowels, for it was in this case, partly owing to the large accumulation of fecal matter, that a colostomy was done on the patient (previously mentioned). The rays were employed in these cases not oftener than alternate

[1] Read at the sixth annual meeting of the American Proctologic Society, held at Atlantic City, N. J., June 8 and 9, 1904.

days, and frequently not oftener than every third or fourth day.

2. *Radium.*—My personal experience with the use of radium has been even less than that with the *x*-rays—in fact, it has only been used in one case, and in that one in conjunction with the employment of the rays. This was in the case of the patient whose cancer was complicated by the fibroids of the uterus. The difference (if it might be called such) observed in this case was that the fibroids dwindled in size as if by magic. This change was not attributed by me to the use of the radium, but to the treatment by the *x*-rays. Within a week after the cessation of the combined use of the radium and the *x*-rays the tumors became as large as ever. Strange as this may appear, and strange it certainly has seemed to me, these are the facts. In this same case, two weeks after the colostomy, a pelvic abscess ruptured, fortunately into the rectum, and discharged itself per the lower opening of the artificial anus, clearly indicating that the opening was above the site of the cancer. The formation of the abscess I do not attribute to the use of the agents under discussion. Mention is made of the complication only as a detail of history worthy of record. From my point of view I cannot feel much confidence in the outlook for favorable results from the treatment of cancer within the bowel by either radium or the *x*-rays.

3. *Extirpation.*—Unfortunately, we have in cancer of the rectum a disease which often exists without any marked manifestation of its presence, such as pain, tenesmus, discharge, or diarrhea, until the malady has progressed to such an extent that eradication of the growth is impossible. Perhaps when the laity have become educated to the need of early consultation in all cases in which symptoms exist (even though of apparent unimportance), such as distress or discomfort in the anal or sacral region, and when the profession have realized the necessity for the examination of the rectum in all cases with intestinal symptoms, the time may come when the surgeon may be enabled to offer to such patients more encouragement than is at present possible in favor of radical operative interference.

I firmly believe that the ideal method of treating cancer in the rectum would be by extirpation, but the operation should only be attempted in those cases in which the neoplasm is discovered in time to permit of the entire removal of the growth and of all glandular involvement. My personal experience with cases of malignant disease in the locality under discussion does not permit of my advising this measure in over five per cent of the patients seen. In each case of cancer of the rectum coming under my observation for advice I endeavor prior to reaching any conclusion to mentally place myself in the position of the patient, and from that standpoint endeavor to determine what course is best to advise. Advice given under such circumstances must necessarily be the best that one individual can give to another, and the relief it affords the surgeon of any undue feeling of responsibility—no matter what the issue—has been always to me a great consolation.

In concluding this phase of the subject I would say that cancer of the rectum, at the stage usually discovered by the surgeon, is far less amenable to operative interference of a radical character than cancer occurring in any other portion of the body; that an operation is followed by a cure in only a relatively small proportion of the cases, even when the growth has been completely ablated, owing frequently to a prior metastasis; that the dangers to life attending and following the excision of growths situated above the lower two or three inches of the rectum are very great, and furthermore, the results as to comfort and freedom from pain are usually anything but satisfactory.

4. *Colostomy.*—This operation is indicated in otherwise inoperable cases of cancer of the rectum (and sometimes as a preliminary step to the excision of growths considered operable), and in the first instance is resorted to in order to alleviate or prevent pain, diarrhea and tenesmus, fecal impaction, and other distressing symptoms of obstruction. It likewise permits of the irrigation of the rectum, both from above as well as below, so that the affected parts may be cleansed. In those cases in which the operation is performed at a suitable period (the time for which is selected with due judgment and appreciation of

the particular exigencies of each case) life is undoubtedly prolonged, and in many instances these patients gain materially in weight, and some of them become sanguine of ultimate recovery. The longest time a patient has lived after colostomy performed by myself for cancer of the rectum has been eight years—usually the average time has not been over three to four years. The weight gained by these patients after operation varies from fifteen to as much as thirty pounds. In my early experience I advised a colostomy much sooner than I am in the habit of doing now. The site and extent of the growth as well as the particular environment of the individual case are all factors which, combined with the necessary experience in dealing with many patients afflicted with this malady, enable one to justly determine when this operation is justified.

1610 Arch Street.

CALOMEL AN INTESTINAL ANTISEPTIC.[1]

By Alexander McAlister, M.D.,
Camden, N. J.

The hitherto unprecedented success of antiseptic measures in wound treatment made an effort to apply similar principles everywhere in medicine as well as in surgery inevitable. The universal cause of disease had at last been apprehended, apparently at least, in bacterial life, and the panacea, antiseptics, was discovered. Sterilize wounds, disinfect everything—the mouth, the respiratory tubes, the alimentary tract, the urinary apparatus, the blood, etc.—became the watchword. The theory was: Give all the vital processes aseptic materials upon aseptic workbenches and disease cannot exist.

Time has now demonstrated with a fair degree of clearness the range of utility of antiseptics in internal therapeutics. The purpose of this paper is to consider their application to the alimentary canal, particularly in pediatrics, and to compare the effects of calomel with those of the group of remedies commonly classed as intestinal antiseptics.

Efforts to apply antiseptic measures to the alimentary tract have resulted in much animated discussion and valuable experimentation. Already much important knowledge has been gained regarding this interesting region of the animal economy. The gist of this knowledge is contained in the statement that an aseptic alimentary canal is not possible to any known methods; and further, that a condition closely approaching it is impracticable and injurious.

Bacterial activity is essential to normal digestion and assimilation. The products of bacteria act mechanically and chemically as stimulants of intestinal activity. In other words, this region has its normal flora in the growth and activity of essential intestinal bacteria. The presence of a powerful antiseptic in the intestines is injurious to that degree in which it is destructive to this normal flora.

Excessive bacterial activity is a prominent characteristic of all morbid conditions of the alimentary tract. If not generally causative it is always active in prolonging and aggravating disease. Every remedial measure which fails to restrain this excessive activity is valueless. The feature to consider, then, is not the presence of bacteria in the intestines, but their proportion and condition; or in other terms, an abnormally dense flora.

Fermentation and putrefaction are processes of the highest importance in normal digestion. The former is always abnormal when it occurs in the large intestine, and the latter when it occurs in the small. It has been suggested that digestive activity is probably the sole restraining cause of putrefaction in the small intestines. It certainly so acts with reference to fermentation in the colon, for properly digested food has no particles which are any longer susceptible to fermentation.

On the other hand, excessive fermentation in the small and excessive putrefaction in the large intestines are both abnormal conditions due to a too dense bacterial flora, the latter being the same in the large and small intestines.

The presence of products of incomplete or otherwise faulty digestion in the colon, favored by intestinal torpor, always results in fermentation or excessive putrefaction, or both; and retained matter anywhere in the intestinal canal undergoes secondary decomposition. But whether

[1]Read before the New Jersey State Medical Society, June, 1904.

one or the other morbid process, the result is that new and deleterious chemical products are formed which cause disease.

Two facts relative to the products of excessive bacterial activity are of special interest in this connection: First, they lock the intestinal movement and thus indirectly as well as directly retard digestion; secondly, this effect is accumulative in its character. As the toxic chemical products are absorbed, conditions are rendered more and more favorable for the production of still larger quantities of such products.

The morbid results are shown in such various conditions as constipation, the bilious state, diarrhea, enterocolitis, skin diseases, etc. The indications for treatment are always threefold: fecal accumulations must be removed, glandular activity stimulated, and the excess of bacteria reduced to the normal proportion.

The order of importance of these indications is observed in the statement. The first is essential to the accomplishment of the second, and *vice versa,* the second is needed to bring about the first. On the other hand both are directly and indirectly active in gaining the third.

The intestinal antiseptics—naphthol, creosote, sulphocarbolates, salicylates, salol, etc.—all interfere more or less with the digestive functions. This is a stubborn fact in clinical medicine capable of demonstration in the test-tube. The digestive ferments, whether in the body or out, cannot act normally in the presence of this class of drugs. These antiseptics do not pass through the stomach without interfering with gastric digestion. In the intestinal canal they may or may not be actively germicidal. Their general effect is to retard rather than stimulate glandular activity and peristalsis, and thus they leave the bowel contents unmoved.

Some of the remedies named are of especial value for controlling intestinal fetor because effective in minute doses. This applies particularly to the sulphocarbolates. But none meet the threefold indication for antiseptic treatment even when preceded by suitable cathartics.

Their usefulness is small, especially in the treatment of children, in my experience. In the treatment of adults, on the other hand, certain conditions call for their systematic employment. Typhoid fever, when there is looseness of bowels, and certain diarrheal diseases, may be named as examples.

Calomel, while never so classified, is still our best intestinal antiseptic in pediatric practice. It alone can be depended upon to meet the threefold indication for treatment above named. The mercury group gives us our best antiseptic for external local treatment. It is but natural that this group should contain also the best antiseptic for internal use. It is an odd fact that both are chlorides, and that while the former is a corrosive poison the latter is "sweet," as the ancients described it.

Unlike the so-called intestinal antiseptics calomel does not interfere with the action of digestive ferments. It does not retard a single normal process, whether secretory or mechanical. On the other hand functions are stimulated and given tone to resume normal activity. This applies to the liver as well, no matter whether we regard the drug as a true cholagogue or merely as a stimulator of the flow of bile.

In the presence of free alkalies a small portion of calomel is converted into a black oxide, probably the only form in which the medicament is absorbed. This is still, however, a debated subject; but the mooted questions have only passing interest, since the antiseptic effect is obtained so largely in an indirect way. There is direct antiseptic action, by reason of which, in a measure at least, the mercurial purgatives are so distinct and unique a class. The oxide exerts such action in extended treatment throughout the length of the intestinal canal.

The point of greatest interest in the comparison of calomel with the members of the group above named is this indirect antiseptic action. Calomel liberates the stagnant bile, increases the pancreatic secretion, and stimulates all the intestinal glands. The result is not merely the characteristic large watery calomel stool, but, and this is the feature of greatest interest, the restoration of functions which make for a normal intestinal flora.

In normal digestion provision is made for the neutralization of acids that are no longer required, and for the removal of free alkalies when digestion is completed. In like manner provision is made for the

destruction of normal bacteria when their work is done, and for holding their growth within normal bounds during digestion.

The latter we find in what is called the antiseptic power of normal secretions, digestive juices, etc., of which there remains much to be learned. But the point in consideration here is the fact that calomel stimulates the flow of these normal intestinal antiseptic fluids in a manner quite different from that of all other drugs.

Speaking especially of the treatment of children, calomel is our best intestinal corrective and antiseptic. It is now used more than ever before, and its scope of application is sure to continue increasing. Small doses place the drug in easy control and enable the physician to gauge and prolong the therapeutic effects. At the present time one-tenth-grain doses are used more frequently than any other by the profession in general. Smaller doses will come into larger use when the effect is better understood, the drug applied with more skill, and the former bitter hostility gone.

Every quality of calomel, physical and remedial, eminently adapts it to the treatment of infants and children. That children literally fatten on calomel is a commonplace observation.

As a rule I administer one-tenth-grain doses every hour till one grain has been given, or till evacuations occur. If the condition treated is diarrheal, smaller doses are employed or the interval lengthened. Whatever the condition the first object in treatment is to impress the system by reducing abnormal bacterial activity. In gaining this point the combination of soda bicarbonate with calomel acts beneficially by facilitating the conversion of the insoluble chloride into soluble compounds.

HOW TO MAKE THIN PEOPLE FAT, OR HOW TO MAKE WEAK PEOPLE STRONG.

McAfee in the *Charlotte Medical Journal* for July, 1904, writes on this subject.

In this brief paper the author only mentions the means of treatment at our disposal, and the selection and adaptation must rest largely with the attending physician. Drugs alone are almost of no use. The cases of dilatation, with gastroptosis, and splanchnoptosis, will be so benefited by a properly fitting abdominal supporter that we cannot afford to dispense with this accessory to the treatment. Once patients have them properly adjusted, they are unwilling to go without them. The secret is in the proper fit. The supporter must really support the viscera, and also be comfortable. Next is gastric lavage, for the triple purpose of ridding the stomach of offending, fermenting, decomposing débris, of stimulating gastric secretion, and the toning up, by the massage it gives, of a weak atonic muscular wall. In lavage properly medicated solutions can be used, and should be used. Intragastric spraying with stimulating medicinals is of value in selected cases, just as medicated sprays are of value in pharyngeal and laryngeal troubles. Rightly used the spray is a beneficial remedial agent, and must be at hand, for some of our cases have to use it. Also of very great importance is the use of electricity, faradic and galvanic. Its value is known and appreciated only by the practitioner who uses it faithfully and for a sufficient length of time, and as a muscle and nerve tonic the author believes that its usefulness is unappreciated by the profession at large. It can be used both intragastrically and extragastrically, and some cases will show a more rapid and marked improvement with the intragastric use of it. Drugs are of minor importance, and of value only as an adjunct to the other methods of treatment; the drugs of most value being strychnine and the bitter tonics, but they are practically inert in a dirty, foul, decomposing residue in a dilated, slothful stomach. Pure olive oil is of much benefit as an adjunct to the dietary, and Hemmeter uses it by hypodermic injection.

In conclusion the author says that thin, weak patients are suffering with definite discoverable lesions; that these lesions are amenable to treatment, resulting, in most cases, in a restoration to comparative health and vigor; that they should make a comfortable gain in weight, and that when we do not so restore them, in the majority of cases, we are depriving them of their just rights at our hands, and diminishing our reputation as physicians, and are culpable, more or less, in both instances.

The Therapeutic Gazette

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Leading Articles.

POISONING BY TOO STRONG SOLUTIONS OF MERCURIC CHLORIDE.

When the wonderful results of antiseptic measures in the treatment of wounds were first laid before the medical profession, it was natural that in the endeavor to obtain excellent results in contrast with old methods physicians and surgeons should employ antiseptic substances in concentrated form with the hope that they might destroy the microörganisms which had come to be recognized as the cause of suppuration and infection. It was only after experience had taught us that these antiseptics in concentrated form were capable of damaging the tissues as well as destroying microörganisms that the profession awoke to the necessity of employing very much weaker solutions than those which were first used. The writer well remembers seeing one of the most eminent surgeons in the United States, when he first took up the employment of antisepsis in surgery, employ so strong a solution of mercuric chloride that he actually cauterized the tissues of the patient, and so devitalized the margins of his wounds that though suppuration did not occur healing was greatly delayed. From this general principle of antisepsis a natural reaction soon ensued, and a number of leading operators enunciated a fact, since widely recognized, that asepsis is preferable to antisepsis in the vast majority of cases, and that clean hands, clean instruments, and a clean field of operation would produce even better results than when drugs were employed. More recently still the reasons for this have become still more evident. These reasons are not as fully appreciated as they deserve, and we are wont to forget that the blood is a powerful bactericide, and that virulent microörganisms exposed to it in moderate number are not only destroyed, in the sense of being devitalized, but actually disappear as well. The rapidity with which the bacteriolytic power of the blood is exercised depends of course to a large extent upon the so-called vital resistance of the individual. It must therefore be remembered that powerful antiseptic substances may do much toward destroying this bacteriolytic power of the blood, and so in our endeavor to do good we may not only harm the tissues of the patient, but remove nature's antiseptic, which is not only protective in the sense that it destroys infecting microörganisms, but also in the sense that it aids in the rapid healing of the wound.

Attention has also been called to the utter futility of employing vaginal antiseptic douches prior to labor with the idea of rendering a parturient canal aseptic. Bacteriological investigation proves that this is impossible, and it has also been proved that it exposes the maternal parts to great injury. Finally, it must not be forgotten that in those unfortunate cases in which mercury bichloride has been used in a vaginal and uterine douche, a sufficient quantity of the drug has been absorbed to produce disastrous effects not only in the parturient canal, but upon the kidneys as well. A case has recently come to our attention in which through the mistake of a nurse in providing the obstetrician with a 1-to-500 solution of corrosive sublimate for uterine irrigation death ensued in a few days by reason of renal complications.

THE CHOOSING OF AN ANESTHETIC.

Every reader of the THERAPEUTIC GAZETTE is aware of the fact that the medical profession in the North and South are divided on the one hand into those who use ether, and on the other into those who use chloroform. In many of the great hospitals in the North chloroform is so seldom used that resident physicians leave their halls without ever seeing it employed, and operators of large experience will freely admit that they have never performed an operation on a patient who was under the influence of chloroform. The reverse proposition holds true in the hospitals and private practice of Southern practitioners.

Aside from the mere following of routine, there are, of course, several reasons which have produced this wide difference in method, the most important of which is that owing to its volatility ether does not lend itself to ready employment in a hot climate, and again, it would seem probable that chloroform is taken with more impunity by those who live in a warm climate than those who live further north.

The object of this editorial is not to endeavor to persuade physicians in the North to commonly employ chloroform, for without doubt ether is a much more satisfactory anesthetic in the majority of their cases. Neither is it our intention to urge upon Southern practitioners the use of ether in preference to chloroform. Even if we had such a wish, we appreciate the fact that it is not possible to overcome the customs and habit of years. We do, however, wish to urge greater thought in the choice of an anesthetic in individual cases. In earlier issues of the GAZETTE we have expressed the belief that physicians make this choice infrequently. As an illustration of this fact the following instance may be cited which has been met on the day that this note is written: In a large hospital, so well equipped that its condition is the pride of its staff and managers, there lay a child who required a serious operation for the relief of a purulent infection, who was also suffering from an acute infectious nephritis. When the operation was to be performed this hospital did not contain within its walls any inhaler suitable for the administration of chloroform, save, of course, a piece of gauze, nor did it contain a cylinder of nitrous oxide gas, or the inhaler which is commonly employed with this anesthetic. It was evident that ether was not the anesthetic of choice in this case. The possibility of its irritating the kidneys, of its acting slowly and permitting struggling, and finally and most important, the strong probability that its use would precipitate pulmonary edema during or after the operation, were sufficient to show that it must not be employed. While it is true that the operation was too long for the employment of the nitrous oxide, we believe that this gas might have been used advantageously for the rapid anesthetization of the patient, and that the anesthesia could then have been prolonged by chloroform. In the absence of the gas, chloroform was used by the drop method on gauze, and although the patient was markedly toxemic, and in anything but good condition prior to the operation, she passed through the operative period quietly and comfortably, and returned to consciousness if anything in a better condition than before the operation was begun.

These facts do not indicate that chloroform should always be used in preference to ether, but they serve to emphasize the fact that certain conditions are met better by one anesthetic than another, and as the judge makes the penalty fit the crime, and as the doctor makes his remedy fit the disease, so should the anesthetist not adhere to one anesthetic alone, but be qualified to administer the anesthetic, be it what it may, which will suit the peculiar condition of the sufferer at the moment that he passes under the surgeon's knife.

THE OLD AND THE NEW.

Sir Dyce Duckworth, of London, well known as a practitioner of many years' experience, and particularly because of his studies in gout, has recently delivered an address in which he has urged upon the profession the advisability, if not the necessity, of being more conservative in their employment of new remedies, condemning the tendency of the present day to employ new and untried drugs to the exclusion of those which have been tested

for many years by skilful practitioners. There can be no doubt that this tendency on the part of physicians exists to an extraordinary degree, and it undoubtedly owes its existence to the fact that in our struggle with disease we have such an "uphill fight" that we are often ready to grasp at straws with the hope of assistance and with little more intelligence than is exercised by the drowning man who seizes anything that he may see or feel in the hope of being saved. The second reason for this action on our part is equally devoid of common sense, and is bred of the same spirit which causes the layman to dose himself with patent medicines in the hope of relief. In other words, the layman clothes any drug with supernatural or magic power, and never recognizes that it may do harm. About a new remedy there is not only the charm of novelty, but an uncertainty as to effect which seems to make it attractive, and so physicians continually employ them.

It is needless to say that the writer of this editorial is the last one who would discourage the introduction and employment of new drugs. Scattered through the vast mass of useless inventions of the last twenty years there stand out in bold relief a very large number of synthetic and other products which have proved a blessing to humanity, and which will undoubtedly remain standard remedies for many years to come. Without the desire to produce and employ such remedies therapeutics would be at a standstill instead of being one of the most progressive departments of medicine. Yet, on the other hand, there can be no doubt that the warning of Sir Dyce Duckworth contains much that we can take to heart, and even if we accept unqualifiedly all new drugs, we certainly should not be forgetful of the fact that our forefathers often reached excellent results by the use of old ones.

In many cases of heart disease with dropsy, apocynum and squill still may execute wonderful effects. Blue mass is not employed often enough in cases of cardiac failure. Bleeding, which undoubtedly has its limitations and also its sphere of usefulness, is almost entirely obsolete, and a host of other remedial agents might be named which have gone out of fashion, but which nevertheless still possess all the powers for good that belonged to them when they were commonly employed. If, however, the physician of to-day believes that it is necessary that he should use new remedies rather than old ones, he certainly owes it to himself and his patients to see to it that these drugs are in reality not combinations of old ones under new names, and if they are chemical products he will do well if he studies their constitution to discover their real power. We have pointed out within the last few years in these columns a number of instances in which a drug which promised much theoretically proved useless, because its chemical constitution was such that it passed through the body unchanged, and in its ordinary form was entirely inert. Such drugs, for example, are the so-called cacodylates, which were heralded so loudly by the French school. There have been other products, too, which are claimed to possess the power of conveying to the body sufficient quantities of oxygen gas to be therapeutically valuable, although a very few moments' thought must convince the intelligent physician that no dose which can be taken will be large enough to provide a sufficient quantity of oxygen to produce any physiological effect.

If there is at the present time one crying fault amongst practicing physicians, that fault is the thoughtless acceptance on the part of the physician of the statements of a commercial traveler, who has never studied medicine or chemistry, yet who attempts to lecture the physician upon the clinical possibilities of some product which he is endeavoring to market. Drug houses which conduct their business in a proper manner do not place in the hands of these persons, whose function is essential to modern methods, remedies which are not as powerful and reliable as they should be. The physician should look askance at preparations which have unknown sponsors, and resent the action of employer and employed when reason tells us that the claims must be fictitious. In other words, we must "hold fast to that which is right," and keep open minds as to progress without being willing to swallow, in an undigested form, whatever we may be told by persons who are misled themselves, or who are willing to mislead, as to the value of a given drug.

Reports on Therapeutic Progress

THE PRODUCTION OF ANESTHESIA FOR BRIEF OPERATIONS ON THE NASOPHARYNX.

LUKE discusses this subject in the *Edinburgh Medical Journal* for July, 1904. His views as to the best posture in operation for adenoids is that Rose's position is the safest and most convenient both for anesthetist and surgeon. As Kendal Franks remarks, "If Rose's position be adopted I cannot understand how blood can possibly get into the larynx, if we only sponge carefully." As regards the anesthetic—

1. For adenoids alone, ethyl chloride should be used as the routine agent. Nothing more is necessary as regards the duration of anesthesia, and the use of chloroform can only be rendered necessary by some exceptional conditions, such as extreme dyspnea in the patient, or ethyl chloride being unprocurable.

2. For the removal of adenoids and tonsils, in the very large majority of cases ethyl chloride will again be sufficient in every way. In operations of this nature, where there is such abundant hemorrhage that speed in operating is all-important, dalliance is both annoying to the person responsible for the anesthetic and bad for the patient.

3. For removal of polypi, septal spurs, turbinectomy, ethyl chloride will often be sufficient again; but for certain cases a longer anesthesia may be required, especially when any of these conditions coexist with enlarged tonsils and adenoids. In such cases a sufficient anesthesia can always be obtained by means of the chloride of ethyl and ether sequence, or chloride of ethyl followed by C. E. mixture. If chloroform be used, it should be preceded by ethyl chloride and ether, and only sufficient given to keep the patient between the second and third stage of anesthesia with both the conjunctival and laryngeal reflex present.

The author agrees with Mr. Silk, who lays great stress on the importance of the surgeon and anesthetist being accustomed to work together, and so knowing each other's requirements and methods.

Only with such conditions can the best results be obtained.

THE MODERN PURSUIT OF NOVELTIES IN MEDICINE.

Sir DYCE DUCKWORTH, of London, in the *British Medical Journal* of June 11, 1904, gives an address on this topic which he delivered at Dorking. It is the plea of a veteran for holding fast to that which is good. After regretting the haste to find new remedies and ignore old ones he says that we have often but to reset the ideas of our predecessors in physic, and to accommodate them to the mode of our own time, or perhaps to recast them, to render them available for to-day's use. Our temper should then not be that of the relentless iconoclast. If we intrude into the old shrines, and break up the images, we should look carefully for the hidden gems they almost certainly contain. The author applies these views and deals with some concrete instances to make his meaning clear by stating that we find that abuses in practice crept in owing to routine habits, false doctrines, and the tyranny of tradition. The practice of bleeding so prevalent early in this century fell into disuse, and five-and-twenty years ago was practically abolished. The lancets rusted, and the trade in leeches greatly declined. But there is a time to bleed and a time to abstain from it. The prudent and observant physician knows this, and he is quite uninfluenced by any prevalent fashion which either encourages or discourages the practice. The oculist, who sees what he is doing better than the physician, never gave up the practice in deference to those who condemned it as an enfeebling procedure. There were, and there are, and always will be, cases in which it is proper to employ abstraction of blood. There was, therefore, a not inconsiderable measure of truth underlying this practice of our predecessors. Many of them outran discretion, and the knowledge of their time forbade their recognizing the exact conditions in which alone bleeding was a sound practice.

Again, the hard, or, as we should say, the tense pulses, which to them always indicated venesection, are now recognized by us as sometimes salutary, or as demanding more benign eliminative methods of treatment. But some of the conditions thus manifest were clearly appropriate for the lancet, and were wisely

thus treated, and with benefit; and the same holds good now—albeit the writer thinks there is still too much hesitation to bleed, owing not a little to prejudices on the part of the patient or his friends.

With respect to the employment of mercury, we find much the same comment to make. It is true that the great value of this drug has been rediscovered in recent years. It was certainly grossly abused, as was bleeding; and equally stormy disputes occurred regarding its value, especially in relation to its power of reducing inflammatory processes. It was credited with virtues it did not possess, but it did unquestionable good in many cases. We now recognize its usefulness in reducing pulses of high tension, and know that no agent so well and so promptly relieves gastric and biliary catarrhal states. The disuse of mercury led to much continued suffering on the part of patients, and so its several compounds had to be brought back into use by those who had been diligently instructed not to employ them. In our student days mercury was largely out of fashion for all ailments, and was, in the Edinburgh School especially, denounced at that time as a remedy for lues venerea. With many others the writer had to quickly unlearn this teaching, and to discover how very wrong it was. So here, as in other cases, we find that a reformation is attended with much that is wrong in itself and undesirable, but good comes of it in the end when the pendulum swings calmly once more. Our predecessors then were not altogether in error. They had a modicum of the truth of these matters, and we have been, with further light and experience, enabled to find more clearly wherein the truth lies. (The author here throws out a suggestion that the calomel of our predecessors' days was a more efficient drug than the chemically, perhaps too chemically, pure salt used to-day. It appears to have been more prompt in action, more aperient, than ours, possibly owing to some admixture with bichloride of mercury.)

Again, it was formerly the practice to employ purgative medicines to a far larger extent than is now done. We may recall the famous prescription of Mr. Abernethy, of blue pill and black draught, which was greatly in vogue, and which has now been replaced, often inefficiently it is believed, by doses of aperient mineral waters. The fashion set in against purgatives, not improbably because many of them were drastic, griping, and lowering. Modern pharmacy has, however, removed many of the crude qualities of the drugs which were used fifty years ago, and we may therefore now employ them with more certainty, and, as the old doctors said, *jucunde,* for the same purposes our predecessors were wont to use them.

Once more, the older physicians held strongly by the conception of certain bodily habits or proclivities which they termed diatheses. They were impressed by the varied manifestations which attached to particular families or individuals in respect of their tendencies to certain ailments and diseases. They were led, too speculatively, no doubt, after the fashion of their time, to elaborate a variety of these conditions or diathetic states, and they overelaborated them with an unwarrantable refinement with which we now find it impossible to agree. For many years past these doctrines have been discarded and forgotten, and members of the human family have come to be regarded by those who oppose these views as so many indifferent units, items, or ninepins, void of any textural peculiarities or proclivities. Some amongst us, however, have come to see that there was a basis of truth in some of these neglected observations, and that if we honestly use our wits we can find abundant evidence to satisfy us that several diathetic habits of body exist. The author only alludes to the scrofulous and rheumatic diathesis, and in respect of these will affirm that the most recent achievements in medicine, those of bacteriology, tend to confirm the truth of the older doctrines in regard to them. The proof lies in a recognition of the fact that certain families and individuals are, either by heredity or acquirement, impressed with textural proclivities in the direction of one or the other of these conditions. We recognize the tissues of such persons as being specifically apt to react mischievously, or to be especially vulnerable, to the attacks of microbic parasites, particulate, as in the case of tuberculosis, particulate also, and toxic, as in that of the infection of rheumatism, which we now regard as a toxemic condition due to invasion by some

microbe of the streptococcal genus. To entertain any doubt on these matters is, in the author's opinion, to be possessed of slender clinical instincts.

Were they not amongst the certainties of medicine for some of us, it might suffice to remark that Sir James Paget held by these doctrines and taught them. Thirty years ago they were taught by Laycock, of Edinburgh, who impressed their importance on his pupils; but his voice was at that time as of one "crying in the wilderness." Those who sat under him have long had good reason to bless his teaching and realize the truth and value of it.

The author has thus tried to show that some of the best-established methods of older times were not altogether wrong or mistaken, but that we have in our day come to improve them and to find certain indications for their application. This is a sound and rational practice—one which helps to establish more firmly the principles of medicine. What we have carefully to do is to learn by observation how to employ the methods which have long been proved to be of value in the treatment of patient's ailments, to master this art, and to equip ourselves soundly with the general principles of successful treatment.

The author next passes on to what is now being done in the whole field of medicine. A very different plan, indeed, is followed, and as a consequence he believes that our art has not improved so much as it might have done, that many of the acquired certainties and benefits of therapeutics have been lost, and that we do not afford to our patients the full and prompt measures of relief that are possible for them.

What, it may be asked, is the mischievous element in our modern system of therapeutics? The author would express it thus: A perpetual pursuit of novelties, an untiring effort to produce new remedies, the enjoining new methods of dietary, and with all this the inevitable loss of any well-acquired principles of treatment as founded on long experience of others, or of personal experience laboriously acquired for oneself.

Constant examples of the employment of remedies of which no one has any trustworthy experience are met with, as are also prescriptions composed of many drugs of whose existence we have no knowledge, and which are in no pharmacopœias. Every week, the author asserts, he is informed from German and American sources of some new synthetical compounds and so-called foods, generally with unpronounceable names, which he is invited to use on the strength of monstrous assertions and the raw experience of some young and imperfectly trained physicians.

THE TREATMENT OF PLEURITIS.

In an article on this subject contributed to the *St. Paul Medical Journal* for July, 1904, LANKESTER in discussing the treatment says that it is in these cases that by strapping the lung down tightly with straps of oxide of zinc plaster about two inches wide wonderful relief will be afforded. This plaster is far preferable to the old rubber adhesive plaster as it causes little or no erythema. In plethoric cases, when is found the full, bounding pulse and somewhat flushed face, the author makes a plea for the old-fashioned, much neglected and abused bloodletting. It is time the profession became brave enough to face the prejudice of the laity against this means of relief in certain cases. To bleed an asthenic case is folly; to avoid bleeding a plethoric case is just as foolish. The drawing of about 12 to 16 ounces of blood in such a patient gives marvelous relief, and if only persuaded to try it once the physician will never neglect the golden opportunity to relieve pain in this disease in such a simple and satisfactory manner. Because of the popular aversion to the method, the writer has not been able to do this as often as he wished. He ordinarily opens the median cephalic, in the usual manner, and under strict aseptic precautions. He states that in the commencement of sthenic cases of pneumonia he follows the same course, only at the commencement he usually administers a sharp mercurial purge and gives a hypodermic injection of morphine if the bleeding has not removed pain, or provided he is not permitted to avail himself of that valuable means of aid. He believes he has found good results from the salicylates, probably because, according to E. Quin Thornton, the disease is often of rheumatic

origin. The old routine method of painting the side with tincture of iodine or the use of other counter-irritants he has discarded, since he has found the strapping of the side so much superior to any other mode of treatment. Even this simple matter must be done properly; the straps should be about two inches wide, and be long enough to extend from the spine to the mid-sternal line or a little over; they should overlap about three-eighths to one-half inch, and must be put on snugly and tightly, the lung being emptied of air on applying each single piece of the strapping. If it is done in a slovenly or careless manner it had better not be done at all.

ACUTE TETANUS CURED BY INTRANEURAL INJECTIONS OF ANTITOXIN.

After reporting two cases of tetanus cured in this manner ROGERS states in the *Medical Record* of July 2, 1904, that his experience demonstrates without a shadow of doubt the efficacy in tetanus of injections of antitoxin into the substance of the motor nerves of the part of the body primarily infected and into the spinal cord. From the wonderful and rapid change for the better noted after injecting the antitoxin into the dorsal cord, in one seemingly hopeless case, it might be argued that the motor nerves could be neglected, but in view of the experiments by Meyer and Ransom this would seem unsafe. The exposure of the nerves in the axilla or high up in the thigh is simple and adds nothing to the gravity of the situation, and in the two cases under the writer's care really seemed very advantageous. What he terms his inexcusable neglect to inoculate the obturator nerve in one case he is convinced led to an increase of the symptoms. That they were checked by injecting the dorsal cord only goes to show the necessity of producing a wound of nervous tissue to secure entrance of the antitoxin. This, by the way, is evidently the crux of the whole problem, and seems a beautiful confirmation of a physiological fact, or perhaps theory, which is as remarkable as it is unique, namely, the complete isolation of at least some nerve cells from the circulating blood. The tetanus toxin and the antitoxin can only reach these nerve cells through nervous tissue, and normally this course begins with the terminal filaments of the axis cylinders.

ON THE PROPHYLACTIC USE OF MORPHINE IN CASES OF SEVERE CEREBRAL INJURY.

The following plan of treatment was largely resorted to by the best surgeons of twenty years ago. It is now suggested by MACDOUGALL in the *Lancet* of June 25, 1904, that we return to it. He is sure that many of the best of surgeons would not venture to use it, and the reason is not difficult to understand, for inasmuch as its proximate action is to produce a condition of torpor akin in its features to those which were the dreaded sequelæ of such traumatisms, it is natural to argue that its employment might predispose the sufferer to their advent. Mr. Spence, who was for long as great an authority on head injuries north of the Tweed as his distinguished contemporary, Sir Prescott Hewett, on the south, was, on the whole, averse to its employment, and although when the acute symptoms of meningitis or arachnitis made their appearance and restlessness and delirium seized the patient he found through it a medium of soothing him, it is doubtful if he ever regarded its use as a probably curative measure. And his teaching on this point, as on hosts of others pertaining to practical surgery, was followed by the writer, and for many years, unless compelled by the appearance of grievous after-results, he eschewed the use of opium in cerebral injuries, and although its employment when demanded carried with it comfort and quiet to the sufferer, the writer doubted if it played a highly important part in the treatment of the case.

It was not until 1899, when an abstract of a valuable paper by Dr. J. Barr, of Liverpool, on meningitis came under the writer's notice, that he realized how freely morphine might be given in this disease, how excellent were the results attendant upon its employment, and how in all probability its beneficent action was brought about largely through its effects upon the vascular and nervous systems, inducing that condition of rest

which, as Mr. Hilton so admirably taught, is nature's opportunity. Further and natural reasoning was this: If opium by its action on the nervous system quiets brain cells and lessens the functional activity of the nervous fibrils which connect them with one another, if it lessens pain and removes the effects of peripheral stimuli, if it contracts cerebral arteries and through the cardiac ganglia renders the heart's action slower and vascular pressure less pronounced, then its effects upon a brain that is traumatically damaged and that demands quiet for its repair can only be beneficial. And so the writer has found it, for if after severe brain injury the patient is kept gently under the influence of morphine convalescence has been more rapid and more steady, grave cerebral symptoms have been wanting, and the continuous rise in temperature which usually marks cerebral laceration and hemorrhage have been notably absent. It may be argued, however, that in the antiseptic management of the wound lies the whole secret of success, but this is hardly so, for in common with others the writer has seen these characteristics and continuous rises in temperature where there was no external wound, and where the element of sepsis was, so far as ordinary judgment could carry one, entirely absent.

ON THE STERILIZATION OF THE HANDS.

LEEDHAM-GREEN contributes to the *Birmingham Medical Review* for June, 1904, a paper in which he records much interesting investigation. His conclusions are:

1. Even after the most prolonged and energetic washing of the hands in soap and hot water, it is not possible materially to diminish the number of microbes on them.

2. The same conclusion holds good whether sea-sand, marble-dust, or Schleich's soap be employed.

3. There is no advantage to be gained by unduly prolonging this washing process, as the hands never become sterile, and, owing to the loosening of the epidermis, generally appear more infected after than before the washing.

4. Neither is there any advantage offered by the use of soft soap, or soap containing an excess of free alkali. Any increase in detergent action is more than counterbalanced by its irritating effect upon the skin.

5. The water should be used as hot as it can be borne, and it should be frequently renewed. After washing, the hands may with advantage be rubbed with a dry, rough, sterile cloth to assist in the removal of the superficial cells of the epidermis.

6. The use of turpentine, benzoline, or xylol during or after the washing with soap and hot water does not appreciably improve the results.

7. The aqueous solutions of carbolic acid, lysol, perchloride or biniodide of mercury are practically powerless to affect the microörganisms situated on the hands, and the use of these antiseptics after a thorough preliminary washing of the hands utterly fails to render them sterile.

8. The use of a saturated solution of permanganate of potash followed by the application of strong oxalic acid (Kelly's method) gives wholly inadequate results.

9. The bacteriological power of the new antiseptic "sublamin" is considerably below that of perchloride of mercury, and as a sterilizing agent for the hands is of little value, and cannot be compared in efficiency with the alcohol-sublimate method of Fürbringer, which it was introduced to supplant.

10. The combination of an antiseptic like lysol or biniodide of mercury with a soap does not increase the power of the antiseptic, but rather tends to lower it. Such soaps are practically valueless for the cleansing of the hands.

11. Alcohol possesses a remarkable power of sterilizing the hands, far surpassing that of all other agents. In order to obtain the full benefit of the spirit method it is necessary to employ the alcohol for from four to five minutes; and the whole procedure must be carried out with vigor and intelligence.

12. Unless the hands are in an exemplary cosmetic condition good results cannot be obtained by any method. A roughened or chapped hand does not admit of disinfection.

13. As the result of his experiments the author is forced to conclude that, though the spirit be employed for not less than five minutes, and the hands be in an exem-

plary cosmetic condition, yet perfect sterility cannot be obtained, and in a considerable proportion of cases the hands are still surgically infective. When the hands have been recently infected with septic matter the likelihood of their being rendered sterile is greatly diminished.

14. Spirit soap is greatly inferior to plain alcohol as a cleansing agent; and the addition of biniodide of mercury or lysol to this soap does not materially increase its value.

15. The power which alcohol possesses of sterilizing the hands is principally due to its property of hardening and fixing the superficial cells of the epidermis; in addition to which it has a marked bactericidal action.

16. With the exception of absolute and very high percentages of alcohol the spirituous solutions of antiseptics (perchloride of mercury) are markedly superior to the aqueous solutions in sterilizing power. The efficiency increases in direct ratio to the percentage of alcohol in the solution up to about 70 per cent, when any further increase in the proportion of the alcohol causes a reduction in the sterilizing power of the antiseptic.

17. It is an advantage to replace the watery antiseptic solution in Fürbringer's method by 70 per cent sublimate-alcohol. It is a more powerful bactericide, and it does not reduce the hardening of the epidermis by the previous alcohol.

18. Of all the methods tested, the best results were obtained by the following modification of Fürbringer's process: (*a*) The hands are first scrubbed for five minutes with soap and very hot water (about 50° C.), the water to be frequently changed. The use of sterile sea-sand as an addition to the nail-brush is an advantage. (*b*) The hands are then rubbed with methylated spirit for three minutes. (*c*) Afterwards scrubbed for a minute or two with 70-per-cent sublimate-alcohol (1 in 1000). (*d*) And finally rubbed until dry and polished with a sterile cloth.

19. Hands which have proved practically sterile directly after the cleansing process gradually become more and more infective, as under the imbibition of the water the alcohol-hardened epithelium is loosened.

20. As no method of cleansing the hands guarantees sterility it is desirable that impermeable gloves be worn when the nature of the operation permits, whether the wound be aseptic or septic. In the former case they protect the patient, in the latter the surgeon, from risk of infection.

21. Where gloves cannot be tolerated on account of the loss of tactile sensation they cause, the epidermis of the hands may be protected to some extent from direct contact with septic matter by a thin layer of hard paraffin.

22. A period of abstention from operative work with especially virulent septic matter is desirable.

TREATMENT OF STERILITY FROM VAGINAL CAUSES.

In the *Medical News* of July 9, 1904, WEST states that in cases of congenital malformation of the vagina where the other organs are demonstrated to possess their normal functions our personal consideration for the subject of the deformity is such that we are justified in resorting to any reasonable surgical measure for correcting it, and in this we must realize that we are largely controlled by sentiment. In the breeding of any other animal except a human being we would be controlled by judgment, and the imperfect specimens would not be used for this important purpose.

The treatment of pathological conditions must naturally have been suggested by the enumeration of the causes themselves. In the case of new growths they should be removed, but when of malignant character conception should be guarded against. Where the growth is of syphilitic origin the use of the mixed treatment with mercurials and iodides will usually prove effective. Where the sterility is due to an excessive and acrid secretion of acid mucus, it may be relieved by the judicious use of antiseptics and local applications, among which the very best is nitrate of silver. The application should be made in strength to meet the conditions, usually varying from 20 to 40 grains to the ounce. Several such applications may be necessary at intervals of about one week; in the meantime a cleansing and astringent douche of creolin, one drachm to two quarts of water, and one teaspoonful of

fluid extract of white oak bark, may be administered two or three times daily with the patient in the dorsal position. Excellent results also may be obtained with other antiseptics, as potassium permanganate, bichloride of mercury, lysol, etc. Local applications of alcohol sometimes seem to have a very beneficial effect.

There are several new proprietary preparations of silver in use, none of which the writer believes to be as effective as the nitrate of silver of the Pharmacopœia.

The relief of sterility due to traumatic causes offers a wide field of usefulness, and to attempt a specific description would lead us into a field too broad for the scope of this paper; but operations for the relief of procidentia, cystocele, rectocele, lacerations, and vesicovaginal fistula at once suggest themselves. When sterility is really due to psychological causes the physician can offer practically no relief, the means for this lying with the individuals affected.

Finally, each case should be carefully studied on its own merits, and the etiology thoroughly established; we should map out a definite plan, and persist in this until relief is afforded.

TREATMENT OF THE SUBMERGED TONSIL.

HARRIS gives the following advice in the *Medical News* of July 9, 1904:

Whatever may have been the sentiment of the profession a few years ago toward a *laissez-faire* policy in the treatment of the enlarged tonsil, to-day we may confidently assert that such a course is never advocated in public. All laryngologists, at all events, are agreed as to the necessity of treatment of an active nature. Whatever is said in favor of such a course of treatment in ordinary tonsillar enlargements, applies with double weight to the submerged tonsil. This treatment is essentially surgical; all medication is of no avail. The surgical procedures are: (1) a freeing of the adherent anterior pillar, and, if necessary, the posterior pillars; (2) the removal of the tonsil in whole or in part.

The freeing or separation of the adherent pillar is an indispensable step in the operation. Without such preliminary release any proper attack of the tonsil itself is impossible. In addition, wounding of the pillars is almost certain to give rise to troublesome hemorrhage and great subsequent pain. It will often be necessary, however, to cut loose the plica triangularis in order to free the gland.

Properly performed, the entire operation is scarcely at all painful. This method is, after cleansing the tonsil and throat with a solution of Dobell, to paint both tonsils with a ten-per-cent solution of cocaine, usually operating on only one tonsil at a time, but occasionally the double operation can be completed in one sitting. The painting with cocaine, repeated several times for three minutes, is followed by the injection of 10 to 15 minims of one-half to one-per-cent solution into the tonsil. On account of the numerous lacunæ a large part of the solution runs out. No bad effects following its use have ever been noted. The employment of stronger solutions, as four per cent, reported by one writer, is in the author's judgment dangerous and to be condemned.

The field prepared, the first and important step in the operation is now to be performed. For this purpose Pynchon advises, as indeed he does for the entire operation, the use of cautery knives. With these the author has had no experience, and so cannot speak with authority. For several years he has employed for slight adhesions the dull hook or separator of Pond, or for more extensive agglutination, the sickle-shaped knives of Leland. Care must be exercised in doing this, as in the case of an atrophied pillar the knife may buttonhole instead of cutting down. At times the released pillar can be drawn back with a fine tenaculum and the exposed tonsil removed *en masse* with a tonsillotome. Some surgeons find the snare, either cold or electrically heated, very applicable, and even the volsella forceps and bistoury will at times be found suitable. With all these measures the author has had little experience. Occasionally excellent results will be accomplished without any removal of tissue by merely opening up and thoroughly curetting the various diseased crypts. For this ingeniously designed angular knives have been devised. The author's preference is, however, for as complete a removal of the diseased tonsil as possible, and for this purpose he

knows no instrument equal to the tonsil punch. Various models have been suggested, but those of Myles seem best suited, especially the new right and left angular variety. The chief concern is to avoid cutting the tonsil pillar, the risk of doing which is greatly reduced with the new instrument. With the punch the danger of hemorrhage is avoided. The work can be done rapidly, five to ten minutes sufficing for the actual cutting. The subsequent reaction and soreness is surprisingly slight. The patient is sent home, with orders to remain indoors and gargle frequently with a hot saline solution. For the pain and discomfort the author has found iodoform, in the form of an emulsion, or five-grain tablets, to work admirably. The other tonsil can be removed the following week.

YOHIMBIN: ITS USE IN THE TREATMENT OF EYE, EAR, NOSE, AND THROAT DISEASES.

This drug, urged by some as an aphrodisiac, is discussed by CLAIBORNE in the *Medical News* of July 9, 1904. He thinks the following conclusions are justified from a study of his cases:

1. A two-per-cent solution of yohimbinspiegel, either alone or in equal mixture with adrenalin chloride solution, dropped into the conjunctival cul-de-sac from five to six times in ten or fifteen minutes, will produce both corneal and conjunctival anesthesia. Marked anesthesia of the cornea lasts from thirty to forty-five minutes after the last instillation; the conjunctival anesthesia is at no time so profound as the corneal, and disappears several minutes before the latter.

2. There is a slight stinging sensation immediately following the instillation, which becomes less and less with each instillation, finally disappearing altogether.

3. The eye becomes immediately suffused and continues red for more than an hour after the last instillation.

4. There is no widening of the palpebral fissure.

5. There is a moderate but marked dilatation of the pupil, which comes on several minutes earlier after the last instillation with adrenalin and yohimbin in combination than with yohimbin alone, but lasts in either case from fifteen to twenty minutes.

6. The slight blurring of the vision for far and near appears to be due to spherical aberration rather than to paresis of accommodation.

7. Yohimbin alone or in combination with adrenalin is an exceedingly mild mydriatic.

8. Adrenalin when mixed in equal parts with yohimbin in two-per-cent solution loses its constricting power upon the blood-vessels of the palpebral and bulbar conjunctiva.

9. This last mentioned fact suggests the idea that yohimbin may be an antidote to adrenalin chloride.

10. In view of the congestion caused by yohimbin it cannot be considered the ideal anesthetic for operations involving the conjunctiva or muscles.

11. As an anesthetic in cataract extractions and in iridectomy it would probably be effective.

12. On account of the congestion produced by it yohimbin would be inferior to cocaine as an anesthetic in all operations upon the eye.

POTASSIUM PERMANGANATE AS AN ANTIDOTE TO SNAKE VENOM.

The idea that potassium permanganate is to a certain extent an antidote to the venom of serpents is not a new one. Many years ago the veteran ophiologist, Sir Joseph Fayrer, demonstrated it to be a fact, and the demonstration has been repeated by others. But there have been practical difficulties in the way of a sufficiently prompt use of the remedy to prove efficient in the general run of cases of snake-bite. On the strength of Fayrer's observations, Sir Lauder Brunton undertook about two years ago the endeavor to obviate these difficulties, and extensive experiments with Brunton's device have been made by Dr. Leonard Rogers, of the British Indian Medical Service. An article on the subject, under the names of the three investigators mentioned, appears in the Proceedings of the Royal Society of May 28 (vol. lxxiii, No. 494).

"It is evident," the authors say, "that the hypodermic injection of a solution can never be widely employed, because the hypodermic syringe is expensive, it is liable to get out of order just at the time that it is wanted, and the solution may become

dried or spilt, or may not be available. It is evident that the first requisite for an antidote to snake poisoning is that it shall be always at hand; secondly, that it shall be easily applied; and thirdly, that it shall be cheap."

Sir Lauder Brunton's device for the immediate use of potassium permanganate consists of a wooden case of convenient size with a cap at each end. One of the caps protects a lancet-shaped steel blade set in the middle portion of the case, and the other covers an excavation containing crystals of the permanganate. When a bite has been received a bandage is applied round the limb, a few inches above the bite, and the bandage is tightened by twisting it after the manner of an old-fashioned tourniquet, thus shutting off the return of blood from the limb for the time being. Then an incision about half an inch deep is made with the blade through and above the wound. The tissues will generally be found discolored by the action of the venom, and the discoloration serves as a guide to the direction in which the incision should be carried. Into the tissues exposed by the cut the crystals of permanganate, to the amount of about fifteen grains, are to be rubbed vigorously, having been previously moistened with a little water or saliva. The rubbing is to be continued until the tissues are blackened.

Experiments on animals show the efficiency of this treatment, but thus far they have been carried on only with dried venom dissolved. We are promised a resumption of the experiments with fresh venom. We think the procedure gives great promise of saving life on a large scale in cases of snake-bite.—*New York Medical Journal,* July 2, 1904.

THE RESULTS OF X-RAY TREATMENT.

To the *New York Medical Journal* of July 2, 1904, CHILDS contributes a paper upon this subject. He believes that sufficient time has not elapsed since the first cases of malignant disease were successfully treated for applying to them anything but the term "symptomatically cured," and it is in this sense that the word "cured" is used in this paper. When surgeons report recurrences of carcinoma ten years after operation, we feel that there is no definite time limit for this disease. Realizing, however, that it will require several years to establish a just judgment on the value of the *x*-ray as a remedial agent in certain malignant forms of disease, and that even then we can only arrive at its correct status after a careful synopsis of the results or failures reported by many different operators, the author has endeavored to draw a few conclusions from his own experience and that reported by others.

First, the therapeutic field of greatest usefulness of the *x*-ray is with superficial epitheliomata, rodent ulcer, and lupus vulgaris, when the area involved is conspicuous, as on the face or neck, and where a cosmetic result is particularly to be desired.

Second, healing by the *x*-ray leaves the smallest and least perceptible scar, for when properly applied it destroys only diseased tissue, and particularly commends itself for use in those localities where it is undesirable to sacrifice the surrounding tissues.

Third, the *x*-ray is very efficacious in many obstinate cases, which have resisted the ordinary methods of treatment, such as acne rosacea, chronic localized patches of eczema and psoriasis, lupus erythematosus, and kindred skin diseases.

Fourth, the *x*-ray in tuberculous glands when no suppurating focus is present are encouraging, and the enlarged masses of glands in Hodgkin's disease appear to be susceptible to the treatment.

Fifth, the *x*-ray should not be employed in any operable, deep, malignant growth, with two exceptions: first, as pointed out by Coley, where a surgical operation would sacrifice an extremity, and even in this case the value of the *x*-ray is uncertain, and is determined by a few weeks' trial; secondly, as mentioned by Pusey, with a view to limiting the operation by checking the growth when immediate operation is inadvisable.

Sixth, the *x*-ray may be of service even in inoperable malignant growths, by relieving pain, diminishing discharges, and lessening their offensiveness, and in many cases life may be prolonged in comparative comfort for a considerable period of time. Furthermore, from these apparently hopeless cases a number of remark-

able improvements and a few recoveries have been reported.

Seventh, the *x*-ray should be used as a prophylactic against return after all operations for the removal of deep malignant growths.

Eighth, the area of exposure should be wide, and the intensity and quality of the rays should be adapted to each case.

THE FEVER OF THE PUERPERIUM (PUERPERAL INFECTION).

BURTENSHAW in the *New York Medical Journal* of July 2, 1904, concludes an exhaustive article on this subject, and devotes himself to a consideration of the treatment of the infection. He thinks that reduced to few words, the treatment of puerperal infection has for its aim (1) the removal of the source of infection; (2) the neutralization of the effects of septic germs or their toxins; (3) the support of the patient's vitality. Considerable difference of opinion exists as to the manner in which these aims may best be accomplished. J. Clarence Webster, an authority from whom the author quotes in his paper, advises, when the vagina is infected, that it be thoroughly washed with a 50-per-cent peroxide of hydrogen solution and then packed with gauze soaked in a solution of formalin m. xxx, glycerin f℥iv, and sterile water 1 pint. After twelve hours the gauze should be withdrawn, the parts again washed with peroxide, and fresh gauze inserted. This treatment is repeated until the parts are in a healthy condition. The uterine cavity should be explored with a finger, and if no abnormal masses are attached to its walls, any débris present should be simply washed out with normal salt solution. If the walls are rough or if secundines are adherent, the finger or placental forceps should be employed, followed by saline irrigation.

Webster strongly advises the introduction into the uterus of gauze soaked in the formalin-glycerin preparation. "In cases in which the organisms have not passed beyond the uterus it is rarely necessary to use more than one or two applications of the gauze. When there is evidence of general systemic invasion or of pelvic infection external to the uterus —*i.e.*, parametritis, salpingitis, etc.—it is useless to continue the intra-uterine applications." He condemns the practice of swabbing out the uterus with corrosive sublimate, carbolic acid, and the like.

J. Whitridge Williams advises the following plan: Abrasions or lacerations of the vaginal walls or vulva should be occasionally brushed with pure carbolic acid or with tincture of iodine and the parts kept clean. If the repaired perineum breaks down and suppurates, the stitches should be removed to allow of free drainage. Finger curetting and saline douches are used, if necessary, but bichloride of mercury or carbolic acid douches should not be employed. "If bacteriological examination shows the presence of streptococci, all local treatment should at once be omitted. If dealing with putrid endometritis, and the symptoms do not yield to the first saline injection, additional ones may be given. When the infection has extended beyond the uterus local treatment should not be persisted in, as it will do more harm than good."

The practice of introducing suppositories of iodoform into the uterus in practically all cases of rise of temperature during the first days of the puerperium is very common. As a rule each suppository contains from 15 to 30 grains of the drug combined with starch and cocoa butter, or with starch, glycerin, and gum acacia. But one suppository is used in twenty-four hours, and is held in place by a light tamponing of iodoform or plain gauze. If a septic condition of the uterus has already developed, very much larger amounts of iodoform, even 100 or more grains, may be used without danger of poisoning the patient.

Frequent and copious infusions of normal salt solution are of inestimable benefit. Ergot is always indicated, and usually strychnine and quinine. The writer's custom is to prescribe the fluid extract of ergot in ten-minim doses, or ergotin one-quarter of a grain, and strychnine nitrate one-sixtieth of a grain, every three hours from the beginning of the attack, and later either quinine sulphate two or three grains, or Warburg's tincture (without aloes) in dessertspoonful doses, three times daily. When the patient's temperature declines, brandy or whiskey should be given liberally. Runge (quoted by Bumm) advises large doses of one or the

other liquor during the entire course of the disease. Body temperature should always be controlled by cold-water sponging, ice compresses, or an ice-water coil, and never by the administration of drugs.

The patient's diet should be nourishing to the last degree, but of such nature that the tax put upon the digestive system is reduced to a minimum. During the height of the fever food in small quantities should be given at frequent intervals. Peptonized milk, malted milk, white of eggs, calf's-foot jelly, meat extracts, gruel, and the like, are valuable under these circumstances.

On the same principle that the blood-corpuscles are favorably influenced by the absorption of iodine from the uterus and pelvis, it would seem that an assimilable form of this drug given by the mouth would yield distinctly satisfactory results. In a number of instances during the past year the writer has employed a preparation of this kind, apparently with great benefit to the patient.

TREATMENT OF TUBERCULAR GLANDS BY X-RAYS.

In the *Australasian Medical Gazette* of May 20, 1904, BECKETT writes enthusiastically of this method of treatment. He says that excision cannot be regarded as a cure; it is merely the best expedient to be adopted in face of a confessed inability to cure. There are two reasons why the operation has to be very often repeated: first, the impossibility of drawing any certain line of demarcation between the infected and non-infected glands; and secondly, the surgeon's knife does not attack the cause but the effect of the disease. The infected glands are not the primary cause, but the result of infection that has been incurred elsewhere, so that if even the whole of the infected glands is removed it is quite possible for others to follow on the same course. The same thing can be seen after the removal of the tonsils by excision, as we know it is no uncommon experience to find after the tonsils have been removed that in a few months the enlargement is as great as ever. The question of disfiguring scars is no trivial one to any young woman, and many of these patients are such. On the other hand, by the *x*-ray treatment, if carefully done, there is no disfigurement (although the writer admits that if care is not exercised the neck may be badly marked for a time, but this usually wears off, and can generally be avoided altogether by a careful operator). Above all, the beautiful way in which, in a suitable case, these glands disappear forces the writer to believe he is not claiming too much in describing it as a process of actual cure, which can only be explained on the assumption that the rays act not only on the glands, but also on the primary source of the disease. He invariably finds that the patient gains weight and improves in health. The only drawback is that some time and trouble is required; but the results are so much better, in his opinion, than by operation that he believes most persons would prefer it, and when the facts are better known the operations for excision of the glands will pass into the limbo of the discarded and needless operations.

In regard to the correct explanation of the process by which this disease is cured by *x*-rays, he but briefly alludes to it; and for some time to come this must be purely conjectural, and different theories may be put forward. Laboratory experiments so far are not conclusive as to the bactericidal action on tubercle bacilli; so far they incline to the conclusion that these bacilli are not killed by the amount of *x*-ray exposure which could be tolerated by the tissues of the body, but it must not be overlooked that all these experiments are conducted on bacilli living in very different surroundings of nutrient media favorable to their growth, and this may be a different thing to bacilli residing in living tissues as hostile invaders, where they would be destroyed if the tissues could do so. The assistance to do so might be conceivably rendered by the *x*-ray. The action of the *x*-rays on living animal cells is indisputable—an effect which is not visible at the time, but comes on and lasts for a considerable time afterward, and this effect may bring about a condition of the surrounding tissues that is inimical to the existence of the tubercle bacilli. The writer thinks it far more likely to be due to this effect than to any action of the *x*-rays on the bacilli themselves during the short time they are exposed to it.

In regard to the method of treatment,

as so much of this work is largely a question of time and patience, nothing can be accomplished in a few days or a few exposures. The writer uses a powerful coil and a current of large amperage, giving five-minute exposures two or three times a week. As might be expected, it is advisable to use tubes in the highest practical state of vacuum to obtain as deep penetration as possible, and also because these tubes give other advantages specially suitable to these cases. In the first place such exposures are rather severe, and with ordinary low, or comparatively low, vacuum tubes the difficulty is with the dermatitis which arises and compels the treatment to be suspended for a while. The author finds it possible to give longer exposure and can use stronger currents (that is, up to 8 to 10 amperes) before the dermatitis becomes troublesome by using strong tubes. In some cases marked pigmentation takes place, which may last for a time after the treatment is suspended, but this is not permanent, and in time, as the skin is renewed, it entirely disappears. Some modification is required in individual cases as experience suggests. In cases where suppuration has already commenced the writer's practice is to open and drain through a small opening, keeping open as long as necessary. These wounds heal readily and do not show any tendency to suppurate again.

Treatment varies in length of time according to the severity of the case; roughly speaking, from one to three months is the rule, but the writer has taken longer. He also sometimes uses the high-frequency currents in conjunction, but regards the *x*-rays as the main factor in the cure, and that is another of the reasons why he prefers a very highly exhausted tube, as a certain amount of high-frequency currents are being given off all the time; and if a low vacuum tube is used no good effect seems to result. The enlarged glands disappear very slowly, and even at the end of the treatment can still be detected, but the improvement continues afterward until they entirely disappear. One marked feature is the decided improvement in the bodily health of the patient that takes place. They nearly always gain weight. Enlarged tonsils, which are also often present, also subside, from which he believes this treatment would be as beneficial for such cases, and might well be tried before resorting to excision. As regards the prospects of recurrence, he expected to find that would take place, but so far he has not seen it happen, and merely regards recurrence as an indication of insufficiently prolonged treatment.

CAUTERIZATION OF THE NASAL MUCOSA AND THE PAROXYSMAL NEUROSES.

FRANCIS HARE, of Brisbane, writes in the *Australasian Medical Gazette* of May 20, 1904, of his experiences in this line of treatment. His technique is thus described: After painting one side of the septum nasi with a few drops of solution of cocaine and resorcin on a pledget of cotton-wool attached to a probe, he draws a line with a galvanocautery point from a spot opposite to the middle turbinated body forward and slightly downward for a distance of rather less than half an inch. In about one week's time he repeats the operation on the other side, and afterward does it on alternate sides at intervals of ten days or a fortnight, as occasion requires. On each occasion he selects a fresh spot to cauterize.

The results of this practice, including cases treated by Dr. W. N. Robertson, of Brisbane, are as follows: Complete relief, 313 cases; great improvement, 143 cases; slight or temporary improvement, 40 cases; no improvement, 24 cases.

The results are sufficiently startling. Undoubtedly at first they tend to arouse a feeling of skepticism. Nevertheless, those members of the profession who are personally acquainted with the author, more especially those who have lived and worked in the same city and who have seen and followed up many of his cases, will not, the writer thinks, hesitate to accept his general results. For himself he does so with but little reserve. So well assured is he of the efficacy of the treatment that he advises all asthmatics whose complaint does not at once yield to a moderate dietetic restriction, with moderate physical exercise, to submit to it without further delay.

The full rationale of the result is obscure. The author soon found himself forced to abandon the view that the cau-

tery destroys a sensory irritation in the nose, which is the starting-point of the reflex action, "because, among other abundant and convincing evidence, as a rule the quickest and most satisfactory results were obtained in cases where the nose was apparently normal." He considers that "asthma depends absolutely upon an unstable condition of the respiratory center; that some part of the nasal mucous membrane has a controlling influence upon the respiratory center, and that the area is situated on the septum nasi;" and that cauterization of this area is capable of restoring the stability of the respiratory center.

These views are an almost necessary result of the author's preconviction that the mechanism of the asthmatic dyspnea consists in constriction of the bronchioles by means of contraction of their own circular muscular fibers. But those who accept the view that the asthmatic dyspnea depends upon swelling of the mucosa of the bronchioles through vasodilatation of the bronchial arteries will believe that cauterization of the septum nasi, if it increases the stability of any cerebral center, increases the stability of the vasomotor center. For himself, the writer prefers for the present a less specific supposition, namely, that cauterization of the septum nasi has a restraining influence upon the pathological vasomotor action which constitutes the mechanism of the asthmatic paroxysm.

THE GENERAL MANAGEMENT AND THERAPEUTICS OF NEPHRITIS.

BEVERLY ROBINSON in the *American Journal of the Medical Sciences* for July, 1904, gives the following advice as to his subject:

If threatenings of uremia are shown by increased tension in the arteries, an accentuated aortic sound, and perhaps preliminary muscular twitchings, a few doses of nitroglycerin will often relieve the situation very rapidly. Whenever such is the case, the author orders repeated doses of sweet spirit of nitre, adding a teaspoonful to a tumbler of water, and requests the patient to drink a mouthful of it every hour or two. The nitre relaxes the arteries, acts as a diaphoretic, and is effective and innocent. In its action upon small vessels it may be regarded essentially as nitroglycerin and the nitrites. If there is a real uremic seizure, either in the form of a clonic convulsion or of a rapidly developing comatose state, abstraction of blood, either by bleeding from the arm or wet cups over the loins, will sometimes be the only means of saving life. After several ounces of blood—*i.e.*, from 8 to 20—have been taken, it is often desirable to infuse through the veins with hot saline solution. By doing so we rid the blood, on the one hand, of a certain amount of virulent toxic material that is overwhelming it, and on the other we dilute this toxin in the most approved manner so as to allow the nervous system to support it until we can clear the organism by other efficient though slower means. In a few instances it may be necessary to resort to inhalations of chloroform, injections of chloral hydrate by the rectum, or the hypodermic use of morphine. The author has less formal objections to the use of morphine subcutaneously in the uremia of acute nephritis than he has in the chronic forms; still he is loath to resort to it unless absolutely indicated by the extremity of the case. In certain eclamptic seizures he might advise it, especially when the seizures are frequent and he believes he has to do with puerperal nephritis, and not with acute nephritis. And yet even in these instances, and although morphine injections appear to diminish the frequency of the convulsions, when given before delivery they undoubtedly add to the risk of the child.

In some of these cases he is convinced that repeated inhalations of oxygen are very valuable in avoiding the manifestations of uremia, and in promoting its cure when fully developed. In more than one example it seemed as though just the food for the poisoned red corpuscles was being supplied. As the acute stage passes, the fever disappears, albumin and casts are diminished, and blood cells are no longer found in urine, we may become less rigid about absolute rest and diet. An egg, fresh fruit, a little fish, some light puddings, and green vegetables may be added to the milk dietary. Also the patient may be permitted to sit up, or move about a little each day. For the anemia, which is often very pronounced, some good preparation of iron is desirable in moderate

doses. Of these none equals the tincture of the chloride, either with a little glycerin, spirit of chloroform, and water (Reynolds's mixture), or under the form of the well known Basham mixture, in which it is combined with spirits of mindererus.

In the same way as we require iron, oxygen, more and appropriate food, as the disease becomes subacute or chronic, so we must have good, fresh air and plenty of it for these patients. Those whose means permit should seek, when otherwise possible, a warm, dry, equable climate, where their life should be passed mostly in the open air, and away from fatigue, mental and bodily. Whenever it is impossible to remove these patients from their surroundings, it is incumbent upon them to avoid cold, damp weather, and when they are unfortunately exposed to it, to be warmly clad so as to resist the effects of atmospheric changes, particularly of any draughts of air, to which they are peculiarly susceptible. The albuminuria itself may persist for a long while, and, indeed, may be most difficult to overcome. We have no remedy which has any direct effect probably in promoting curative changes of diseased kidney structure, and we should expect decided amelioration, if not cure, mainly through ambient surroundings of healthful and suitable character, great and continued attention to proper dietary, the use of plenty of spring-water, and promotion of good nutrition by the use of hematinics and avoidance of undue fatigue and worries. From time to time it is desirable to keep the skin active by means of the wet pack or hot-air bath, and under no circumstances should the bowels be permitted to become at all constipated. Every effort should be made to avoid chilling of the surface, undue physical effort, absorbing mental preoccupations, imprudences of diet and régime.

Secondary thoracic inflammations of acute nephritis are often very threatening and difficult to treat. They occur at a time when the patient is already depleted and would bear antiphlogistic remedies badly. Moreover, they run their course rapidly and with great severity. Moderate counter-irritation to the chest walls or more distant parts is useful, but we must beware of causing blisters. We should also be careful about remedies like turpentine, which even locally may occasion renal irritation. If despite everything the acute nephritis has remained uncured and become a condition of chronic diffuse nephritis, there are some special indications which the author further emphasizes: first, in regard to the condition of the stomach and intestines; secondly, in regard to the skin when it becomes tense and unduly distended despite all the means hitherto employed to promote absorption. Nausea and repeated vomiting may become, both in chronic and acute nephritis, a factor of the disease which requires our most careful treatment. After other means have been exhausted the writer has occasionally found that repeated small doses of kirschwasser have been signally successful. This water, so-called, is nothing more (as we all know) than a dry alcohol containing prussic acid from peach-kernels. Chlorodyne, in repeated minute doses, diluted with a little water, has helped the writer at times in a remarkable manner. The diarrhea of chronic Bright's disease is combated, as he believes, when other means fail, with occasionally surprising good effects by means of prolonged intestinal irrigation with hot saline solution.

When edema to an excessive degree exists and affects the lower limbs, in order to prevent the breaking of the skin and resultant ulceration, it is desirable to use the lancet and make several punctures, or incisions, under antiseptic precautions. Subsequently the limbs should be frequently washed with some mild disinfectant solution and bandaged. Occasionally it is desirable to insert a small capillary tube under the skin and leave it *in situ* for a while, after connecting it with a rubber tube of small caliber, so as to carry on continuous drainage into a vessel near the end. Of course such punctures, or the insertion of capillary tubes, may occasionally be followed by erysipelas or local gangrene, despite every care and precaution. Withdrawal of fluid from the pleural cavities by aspiration, when the heart is pressed upon and there is marked dyspnea, or paracentesis of the abdomen, when there is great distention of its walls, or the slow withdrawal of fluid from the peritoneal cavity by means of a small cannula left in place several days, are at times clearly indicated and required. The use

of the alkaline diuretics, such as the citrate and acetate of potash, or the use of a subacid drink with cream of tartar and lemon juice, is frequently very beneficial when the acute stage has subsided, and there are no longer any blood cells in the urine. The former salts eliminate themselves from the economy under the form of carbonates, and when continued for a while, unless they upset the digestion notably, may ward off the development of uremic symptoms. Such is the judgment, at all events, of many careful observers. Whenever the heart has become dilated and weak, the quantity of urine is notably increased, the circulation strengthened, and the patient's general condition improved by means of digitalis, strophanthus, and strychnine in suitable doses.

ACID SODIUM PHOSPHATE AND ADRENALIN IN VESICAL DISEASES.

To the *Medical Press and Circular* of June 29, 1904, WHEELER reports his further experience with these drugs. In concluding his clinical report he says that the efficacy of adrenalin in hemorrhage needs little comment, but it is more admirable in some cases than others. When applied locally it is very reliable as a hemostatic, and also as a local anesthetic, pure or mixed with cocaine. Given internally it seems, naturally enough, to be inefficient in hemoptysis or other remote hemorrhages, and in hematemesis the action might almost be considered "local;" yet in a case under the writer's care of violent hemorrhage from a gastric ulcer internal administration did not check the hemorrhage; a subcutaneous injection of 5 minims of the 1-in-1000 saline solution brought back a pulse in three minutes which was not perceptible in the patient before. She was blanched, fainting on the slightest movement, and in a most critical condition. The hemorrhage in this case ceased on giving liquor ferri perchloridi every hour in 4-minim doses, and occasional 5-minim capsules of turpentine.

As to acid sodium phosphate, the author cannot pronounce definitely on its action until he has treated many more cases, yet he is strongly of the opinion that it is a good urinary acidulant. This he has demonstrated in the case he describes. He also has a record of three other cases whose urine became acid after administration of this drug. Hutcheson, of London, first called attention to its value. Several of the author's professional friends in Dublin have also had success, and others have promised to try it and give him the benefit of their experience. After all, theory must be modified according as practical facts present themselves, and if we find acid sodium phosphate a useful addition to urinary acidulants, physiologists will soon present us with all the scientific details of its action.

A STUDY OF THE EFFECT OF BORAX AND BORIC ACID ON THE HUMAN BODY, WITH PARTICULAR REFERENCE TO THEIR USES AS FOOD PRESERVATIVES.

We have referred to this subject in our editorial columns and in those devoted to Progress quite recently. The following views of DIGHT in the *Northwestern Lancet* of July 1, 1904, are of interest and are based on original investigation:

The decisive test of anything is in the trial of it. The test of borax and boric acid, as made by various feeding and other experiments followed up by after-death examination, and these supplemented by the therapeutic use of borax and boric acid, give answer with the fullest certainty as to their effect in moderate amounts upon the animal body, and justify the following conclusions:

1. That borax exerts no specific action upon the animal body.
2. That any effect it exerts is because of and by virtue of its mild alkalinity.
3. That the sum total of its effects upon digestion is not harmful.
4. That it exerts no ill effect upon the ingredients of the blood.
5. That it does not act as an irritant to the tissues generally or locally, nor cause pathological congestions.
6. That by its use nutrition is not impaired.
7. That it does not increase proteid metabolism.
8. That it is not cumulative within the body.
9. That borax in moderate amount, 2 grammes or more daily, exerts no ill effects upon the adult body.

10. That in proportion of 0.5 per cent it preserves fresh, sweet meat from putrefaction for long periods of time extending into months; while smaller quantities, even to 0.1 per cent or less, have been shown in practical use to preserve for periods of less duration.

11. That putrefaction once begun is not arrested by it nor its further progress checked.

12. That it is not a deodorant, removing from or concealing in putrefying meat its offensive odor.

13. That all this is true of boric acid also, except that any effect it exerts is by virtue of its mild acidity.

14. That boric acid may be taken in larger quantities than borax without harm.

15. That borax and boric acid, like anything naturally good, may become harmful when taken in excess.

IODINE AND MERCURY TO COMBAT LOCAL INFECTIONS.

To the *Medical News* of June 25, 1904, STABLER contributes an article in which he reminds us that the human system may be permeated by small quantities of either mercury or iodine without causing any unpleasant symptoms. When a patient has been taking potassium iodide in full medicinal doses, if calomel be dusted on the conjunctiva a red color will be developed with coincident irritation, due to the formation of mercuric iodide. Calomel being an insoluble substance the iodide of mercury is in this case developed on the surface of the mucous membrane and at first produces only a surface disinfection, but mercuric iodide, being soluble in solutions containing potassium iodide, will penetrate more or less deeply and kill or inhibit some of the microbes embedded in the tissues. If, instead of potassium iodide, the calomel be given internally in moderate doses frequently repeated, and a solution of iodine be applied locally, mercuric iodide will again be formed, but iodine being a diffusible substance and mercury being contained in the fluids of the body the penetration will be deeper and the local irritation less than when the calomel is locally applied.

This consideration led the author about ten years ago to formulate and put in practice a general method of treating local infections, which has given most gratifying results in a great number and variety of clinical cases. The solution of iodine which he applies to mucous membranes is as follows: A menstruum is made of equal parts of glycerin and water. To this he adds tincture iodine one drachm to the ounce with a little belladonna and carbolic acid as local sedatives. This stock solution, which can be made up in a few minutes from materials that every physician can carry, is applied through a simple hand atomizer to throat and nose, if these are the parts requiring local treatment, or it may be applied to the uterus, vagina, urethra, or skin in any way the physician desires.

In using the atomizer he always directs the patient to hold the tube between the teeth with lips closed in the same position as in smoking a pipe, and to breathe through the nose. The bulb is worked vigorously, and the fine spray will be seen issuing from the nostrils, showing plainly that the whole interior of throat and nose is covered with the spray. If the mouth be open, while spraying, the spray strikes the posterior wall of the pharynx and flies back out of the mouth without reaching the postnasal space at all. Even small children readily learn to "smoke a pipe" in this way, and may have their throats pleasantly and painlessly disinfected many times a day.

The author was called to a house wherein he found a father, mother, and fifteen children (negroes) living in four rooms. Five of the children had diphtheria. It was the middle house in a row of small tenements, and the family was receiving frequent friendly visits from near neighbors on either side. The infection was traceable to a previous case of diphtheria about a mile away where one of the children had been staying.

No antitoxin could be obtained, and he quickly resolved to give his method a thorough test. The calomel was commenced at once, and a messenger despatched for an atomizer and a pound of formaldehyde solution. The mother was directed to spray the throats with iodine solution every two hours, and each time to pour a little formaldehyde on the hot stove. Communication with the outside world was cut off as far as possible

by telling the family and warning others of the danger. The effect of treatment was very marked within the first twenty-four hours. Even the baby three months old took it well, and all progressed favorably to recovery without a single complication. Two new cases developed in the family, and these also were successfully treated. There was no spread of the infection to other houses.

In several of these cases when the calomel was pushed the false membrane would clean off, when the iodine spray alone seemed to have little effect. Of course the author always uses antitoxin at the earliest possible moment and takes pains to keep a fresh supply on hand, but this does not kill the bacillus of Loeffler, or prevent it from being carried for weeks or months in the throat of a recovered patient. By using antitoxin, and mercury and iodine simultaneously, the enemy is attacked in front, flanks, and rear, and the only terms are unconditional surrender.

Rheumatism is another infection now generally believed to enter by the tonsil, and the painful condition of the tonsil always gives warning of its presence. Here the mercury and iodine achieve brilliant results, and if applied early suppuration of the tonsil and joint and heart complications rarely occur. When called to a case of acute articular rheumatism it is the author's practice to apply an iodine plaster to the affected joint. A piece of zinc oxide adhesive plaster about six by eight inches has a thin layer of absorbent cotton or lint spread on the sticky side, leaving a margin uncovered about 1½ inches wide all around. The cotton is moistened with tincture of iodine, tincture belladonna, and spirits of camphor, equal parts. The plaster is warmed, applied, and covered with flannel. If the pain is not controlled in twenty-four hours, he raises one edge of the plaster and pours in more of the solution, covering the leak with a fresh piece of plaster; not forgetting to push the mercury internally and also give a little acetanilid and salol. Morphine is very seldom needed where this treatment is begun early. Even in sciatica these measures have given better results than any other treatment.

Subcutaneous infections, such as boils, carbuncles, phlegmons, felons, etc., are treated with the happiest results by combining ichthyol and tincture iodine of each one part with six parts of boroglyceride. He applies them on lint or absorbent cotton, and covers with parchment paper and a bandage. The same treatment is very effective in erysipelas and in mammary inflammations. In local infection of the uterus occurring after abortion or parturition this method has given excellent results. Being harmless and painless the solution may be injected directly into the uterine cavity with a hard-rubber syringe having a long, slender nozzle. The depleting action of the glycerin is here a valuable adjunct. Where the cervix and vagina only need treatment, the patient may be trusted to make the applications herself, as but a teaspoonful of the iodine, ichthyol, and boroglyceride, injected into the vagina and left there, two or three times a day is sufficient. While the author has not yet given the method sufficient trial in chronic skin diseases he believes it will have a field of usefulness in acne, eczema, trichophytosis, and other intractable affections.

CHEMICAL AND PHYSIOLOGICAL ACTION OF THE POTASSIUM CHLORATE AND IRON MIXTURE.

DREYFUS in the *Medical Record* of June 25, 1904, writes upon this interesting formula. The author believes that there is no remedy which is better known to the medical and pharmaceutical profession, or which has become more of a "specific" in medical practice, than the chlorate of potassium and iron mixture, popularly known as "Jacobi's special." The formula and directions for its use are as follows:

℞ Potassii chloratis, 80 gr.;
Tinct. ferri chloridi, 160 min.;
Glycerini, 2f℥;
Aquæ, q. s. ad 8f℥.

Use as a gargle in doses of ½ fluidounce; internally for children from two to six years old, one teaspoonful every hour if required.

The value of chlorate of potassium gargles, also of ferric chloride as a styptic and disinfectant, is too well known to be set forth here. What has, however, made the combination of chlorate of potassium and ferric chloride so interesting is that neither of these chemical agents produces the same gratifying results when

used alone, or when employed alternately. No matter whether diphtheritic serum is used or not, fifty per cent of all physicians still rely on this remedy as a great aid in combating the bacillus diphtheriæ. As it is therefore a fact that neither chlorate of potassium nor ferric chloride produces the same results as their combination does, what explanation can be advanced for the germicidal action of this compound?

The liquor ferri chloridi of the U. S. P. contains at least 5 per cent free acidum hydrochloricum U. S. P., which is equal to 1.6 per cent by weight of absolute hydrochloric acid; the tincture of ferric chloride contains about 0.4 per cent of absolute hydrochloric acid. It is taken for granted that the prescription is dispensed *lege artis—i.e.,* that the tincture of ferric solution is not added to the chlorate of potassium. In the latter case the free acid besides the acid salt (ferric chloride) would set free the chloric acid ($HClO_3$) from chlorate of potassium under decomposition. On the other hand, if the chlorate of potassium be dissolved in water and the ferric chloride added, no reaction will be noticed; the same reaction, however, takes place, only with the exception that the chloric acid set free out of a portion of the chlorate of potassium remains stable in the cold aqueous solution. There is present, therefore, in a well prepared solution of "Jacobi's special," besides the chlorate of potassium and the tincture of ferric chloride, some undecomposed chloric acid. At a higher temperature and in contact with organic matter the chloric acid is split up into perchloric acid, chlorine peroxide, and water according to the following equation:

$$\underset{\text{Chloric acid.}}{8HClO_3} = \underset{\text{Perchloric acid.}}{HClO_4} + \underset{\text{Chlorine perox.}}{2ClO_2} + H_2O$$

Such a decomposition probably takes place when a solution is employed for medication. In contact with the bacillus diphtheriæ the temperature of the solution is raised, and some of the water is withdrawn. All chlorine derivatives, but especially chlorine peroxide, are fatal to bacteria, and especially to the bacillus diphtheriæ. While the germicidal power of chlorine peroxide is greater than that of chlorine itself, it is milder and more innocuous to higher animal life.

While the author does not venture to assert that the specific action of "Jacobi's special" is due only to the energetic disinfecting power of chlorine peroxide in the nascent state, the explanation above given is in all probability correct.

JACOBI, in the *Medical Record* of July 2, makes a few remarks in connection with Dr. W. E. Dreyfus's brief article. While he regrets that his name, or that of any other physician, should be linked together with any "special" prescription—that practice is always liable to tempt thoughtlessness and superficial routine—he admits that the doses published by the author are fairly correct. It will be noticed that a teaspoonful contains a gramme of potassium chlorate and the double dose of the tincture of ferric chloride. When a dose is given every hour the amount taken in the course of a day amounts to about 16 or 18 grains of the salt. That is as it should be, according to his teaching of the last forty-five years, in the case of a child of from two to six years of age. The same rules were given in the *American Medical Times* of 1860, in the second volume of Gerhardt's "Handbuch" (1876), and in his "Treatise on Diphtheria" (1880). From the latter he quotes what he could never sufficiently impress on colleagues or students: "The local effect cannot be obtained with occasional doses, but only by doses so frequently repeated that the remedy is in almost constant contact with the diseased surface. It is better that the daily quantity of 20 grains should be given in fifty or sixty doses than in eight or ten; that is, the solution should be weak, and a drachm or half a drachm of such a solution may be given every half-hour, or every fifteen or twenty minutes, care being taken that no water is given soon after the remedy has been administered for obvious reasons."

One of the main effects of the potassic chlorate is its preservative influence on the mucous membrane of the mouth, which should be kept as intact as possible to guard against the spreading of the membrane. From that point of view the recommendation to use the mixture in question as a gargle cannot be objected to. But (1) small children do not gargle, and (2) "gargles are not of much service" (in diphtheria), "for the simple reason that they do not come into immediate contact with the affected parts, and reach at the

utmost to the anterior pillars of the soft palate" (page 192). Jacobi expresses his satisfaction with his knowledge of the fact that this simple observation, probably not even original, and published by him first forty-four years ago, has been rediscovered and has often given rise to numerous essays.

MEASUREMENTS OF BLOOD-PRESSURE IN FEVERS BEFORE, DURING, AND AFTER THE ADMINISTRATION OF STRYCHNINE.

R. C. CABOT states in *American Medicine* of July 2, 1904, that he has reached the following conclusions from studying several hundred observations:

1. The cases included in this study were all febrile. Among them were 31 cases of typhoid fever, 4 of pneumonia, and 15 others with a variety of diagnoses.

2. In 32 cases the strychnine was given by the mouth, and in 18 subcutaneously. The total daily dose was usually 8 mg. (⅛ grain), sometimes .1 cg. (1/6 grain). Except in a few instances the diet and position of the patient remained the same throughout the experiment.

3. The records were continued for days and occasionally for weeks before and after the drug was given, in order that the regular range of variation in the blood-pressure might be ascertained.

4. The measurements were taken with Stanton's modification of the Riva-Rocci instrument. The maximum pressure was recorded as the height of the mercury column at the moment of the disappearance of the radial pulse, and the minimum as the trough of the wave of greatest oscillation of the column.

5. The measurements were taken at various intervals of time succeeding the administration of the strychnine—from a few minutes to several hours. The observations extended over about eight months and include over 5000 measurements.

6. The total result is negative. The author has been unable to convince himself that strychnine exerts any influence upon the blood-pressure in febrile cases when given in manner and dose as mentioned.

7. In the twenty-four hours following the administration of the drug there was a rise of 5 mm. or more of pressure in 16 cases, a fall in 17 cases, and no change in 24. The average pressure in the 50 cases that received a daily dose of strychnine was no greater than in 18 control cases without any drug.

8. One of the most striking features of the investigation was the fact that while strychnine and whiskey seemed to be entirely without influence upon the blood-pressures, the sight of the dinner tray, or the prospect of getting up, produced a most obvious though transient rise in the pressure. The only permanent gains in pressure occurred when the patient reached a crisis (as in pneumonia), or when convalescence enabled him to get up and walk.

9. As in his alcohol research of last year, the author does not wish to be construed as saying that the drug under investigation is of no value. To prove so general a negative he believes his work altogether insufficient. His conclusion is that in the dosage used strychnine does not raise or in any way affect the maximum or minimum blood-pressure so far as can be determined by the instrument employed.

THE PREVENTION OF NEPHRITIS AS A COMPLICATION OF SCARLET FEVER.

The *Journal of the American Medical Association* of July 9, 1904, deals editorially with this important matter in the following language:

Nephritis is an unfortunately common and fatal complication of scarlet fever, and the careful clinician is always on the lookout for its development, meanwhile employing such measures as are best calculated to abort its occurrence. To this end he strives to keep the temperature within reasonable limits, and he lessens the demands on the kidneys, in so far as he can, by increasing the activity of the other emunctories, namely, the skin, the intestinal tract, and the lungs, while at the same time he flushes the kidneys by means of water introduced into the system by way of the stomach, or the rectum, or the subcutaneous tissues, or even by way of the veins. It has been suggested that a useful purpose might be subserved in the prophylaxis of nephritis complicating scarlet fever by the administration of hexamethylene tetramin (uritone), and

reports have been made of the good influence exerted by this drug in preventing inflammation of the kidneys in the course or sequence of the disease named. This medicament has already proved serviceable as a disinfectant of the urine in the course of typhoid fever, in the treatment of cystitis, pyelitis, and bacteriuria, and in connection with operative procedures involving the genito-urinary tract. It is entirely without unpleasant effect when administered in physiological doses, up to seven and one-half grains, even for considerable periods of time. Dr. Buttersack reports the treatment with hexamethylene tetramin of a series of ten cases of scarlet fever occurring in the course of an epidemic in a small German city, and in none of which nephritis developed. He believes the good results to be due to the decomposition of the drug in the tissues of the kidney, with the setting free of formaldehyde.

THE TREATMENT OF PNEUMONIA WHEN INFLUENCED BY SENILITY AND ALCOHOLISM.

NEW gives the following advice in the *Charlotte Medical Journal* for July, 1904:

Keep your patient quiet, allow no company, and prevent an exertion of the mind and body. While preserving the strength do not forget that it should be kept up by a systematic course of feeding to be established at the beginning. Allow plenty of fresh milk, meat juice, milk, eggs, egg-nog and other forms of liquid food every two hours through the day, and less often through the night; if the temperature is high combine an equal quantity of lime water with the milk to prevent curding. If the stomach fails, resort to rectal alimentation.

The author believes oxygen to be one of the most rational remedies in certain cases, and it should be used always when there are marked signs of cyanosis. The amount and frequency are to be governed by the degree of carbon dioxide poisoning, and the effects produced by its administration. When the crisis is ushered in by cyanosis, beginning delirium, and general depression, we always fear the worst, but the judicious administration of this gas will in many instances give most gratifying results and tide the patient over the critical point.

The author does not attempt to discuss the general treatment of this malady, but emphasizes the fact that the three things already mentioned, viz., rest, diet, and oxygen gas, are worthy of careful consideration in the treatment of pneumonia. If the patient gets good food, a good nurse, and plenty of good air, he will often recover.

THE YELLOW FEVER EPIDEMIC OF 1903 AT LAREDO, TEXAS.

G. M. GUITERAS states in the *Journal of the American Medical Association* of July 9, 1904, that the following conclusions as to this outbreak of yellow fever are justified:

1. The results obtained through the efforts to combat the yellow fever epidemic at Laredo go to demonstrate that the mosquito (*Stegomyia fasciata*) is the only means of transmitting yellow fever, and that the efforts to destroy the same were productive of much good, greatly limiting the number of cases.

2. The measures taken to prevent the reproduction of the *Stegomyia fasciata* or other mosquito, by oiling all water containers and deposits of stagnant water, were completely successful.

3. It was demonstrated that to control an epidemic of yellow fever which has gained considerable headway (and such is the condition usually met with), it is necessary to have absolute power to enforce sanitary measures until such time as the people are educated up to the importance of such measures.

4. Inasmuch as the *Stegomyia fasciata* can only become infected by biting the patient during the first three days of the disease, it is of vital importance that cases of fever be reported at the earliest possible moment, so that they may be screened and the mosquito prevented from biting them. Such being the case, an efficient system of inspection is necessary, especially where there is a tendency to hide cases.

5. It is impossible to obtain good results without a mosquito-proof yellow fever hospital.

6. The difficulties of handling an epidemic are increased when such outbreak occurs on the frontier. Arrangements should, therefore, be entered into by treaty with contiguous foreign countries so that,

under such circumstances, sanitary measures may be carried out jointly by the countries interested, for mutual protection.

7. Insistent and continued efforts should be made through the public press and other available means to educate the people within the sphere of influence of the *Stegomyia fasciata,* so that they will learn to protect themselves against the invasion or spread of yellow fever among them by destroying the means for the propagation of said mosquito, and by protecting themselves against the mosquito by efficient screening.

Above all, to eradicate the existing fear in the medical profession, as well as among the laity, of declaring the existence of yellow fever. If the first case presenting the slightest suspicious symptoms of that disease were promptly made public, and the proper modern precautions taken, there would be no danger of the disease spreading. In fact, the public should be taught to acknowledge the existence of yellow fever in their midst with the same equanimity as in the case of measles or scarlatina.

8. The effort to control the epidemic at Minera was decidedly successful, and would have been entirely so if it could have been given undivided attention. The results at Minera demonstrate almost as clearly as those in Havana that the mosquito is the only means of conveying yellow fever.

TREATMENT OF PNEUMONIA.

To the *Journal of the American Medical Association* of July 9, 1904, GALBRAITH contributes a very suggestive article on this subject. He thinks that pneumonic cardiectasis best describes the condition we have to contend with, and attracts our attention more specifically to the overdistended and disabled heart, that is handicapped by intoxication of the blood it is to distribute.

The author considers the use of stimulants, alcohol, nitroglycerin, and strychnine, during the crisis of pneumonia not only contraindicated, but a most dangerous remedy to apply, as it increases the mechanical conditions that are distressing our patients. Our attempt to base our treatment of pneumonia on the present etiologic findings is as rational as it would be for us to treat the innumerable conditions in which this diplococcus is found as cases of pneumonia. The association of the pneumococcus in so many pathologic conditions is probably due to the same tissue change that is found in pneumonia, and which furnishes a favorable propagating bed for its development.

Hypodermoclysis and general hydrotherapy may be advantageously used in the treatment of pneumonia with the same success they are used in other septic and shock conditions. The success of hydrotherapy will never be appreciated in this, as well as many other inflammatory and exanthematous diseases, on account of its impractical use and the prejudice that is equally shared by the profession and the public in general.

While not wishing to appear dogmatic or to detract from the benefit which his colleagues have secured in the use of digitalis, veratrum viride, aconite, and a host of other drugs—as he fully appreciates the fact that they all have their periods of usefulness from a symptomologic standpoint—yet by no means have they exerted, in the author's hands, any satisfactory results.

Complications are very much in evidence in the majority of cases, especially those having an alcoholic origin or where there has been lack of proper food and clothing.

The author is frank to admit that his experience leads him to believe that the so-called pneumococcus may be associated with the etiologic factors of pneumonia, but it is not its specific cause.

He does not offer his plan of treatment as a specific by any means, but knows it has materially reduced his former mortality.

The first attentions rendered the ordinary cases that are admitted to the hospital are a warm bath and a saline cathartic. The indications governing the administration of quinine and iron are as follows: When the temperature has reached 105° or over, 60 grains of quinine sulphate is to be administered as the initial dose, followed in one hour by one-half this amount, or 30 grains, and the following hour by one-half the latter dose, or 15 grains, at which time the administration of tincture of iron is begun in doses rang-

ing from 7 to 15 minims, depending on the date of the disease and the condition of the heart. If the author sees a patient on the first or second day of his attack, he usually begins with about 10 minims of tincture of iron, increasing it one or two drops, or even more, each day up to the sixth or seventh day, unless the pulse remains full and strong.

He does not believe in giving quinine in small and repeated doses during the active stages. When the temperature is 104° or over he gives 50 grains of sulphate of quinine and follows the same course as above stated. When the temperature is 103° he gives from 30 to 40 grains, following the same course as above stated.

During the convalescence he has found that one or a combination of the following medicines is of value, namely, elixir of iron, quinine, and strychnine, guaiacol, and cod-liver oil. But what has served him best of all at this time is thorough ventilation and sunlight, wth plenty of milk, eggs, and beefsteak.

A PLEA FOR A MORE THOROUGH EXAMINATION AND RATIONAL TREATMENT OF NOSE AND THROAT DISEASES.

In the *Charlotte Medical Journal* for July, 1904, Roy gives excellent advice in regard to these questions. He says let us take some of the subjective symptoms so often complained of by persons who think that they have some nose and throat diseases, and see just what pathologic conditions they might represent, and see how easy it would be to treat the same erroneously.

1. Take first pain, which is a subjective symptom of such prime importance to every individual.

In the nasal cavities proper this does not often occur unless there is severe acute inflammation or severe traumatism. In acute rhinitis, for instance, pain, when it does exist, is of the hot, burning character producing more pressure and congestive neuralgia in the surrounding parts than in the cavities themselves. The membrane is oversensitive, especially to cold air and a dusty atmosphere. For this reason the author is fully convinced that it is illogical to allow people suffering with acute rhinitis or acute cold in the head to go out in the cold during winter and have the nasal cavities sprayed, thus affording double opportunity for more irritation of the mucous membrane. These cases belong to the family physician, and not to the specialist, and need mild depletive measures at home if we would see the nasal mucous membrane return to its normal state.

Pain in the region around the nose is often indicative of some pathological condition of those cavities which empty their secretions through the nose. Pain on the side of the nose, radiating out to the cheek bones, is at least indicative of an antrum disease following an acute rhinitis.

Severe pain at the root of the nose, and a little external to the median line, especially if it be increased on pressure, is suggestive of a threatened abscess in the frontal sinus. However, pain as a diagnostic help in nasal diseases is too uncertain to be of any material aid.

2. Take a second subjective symptom —that of sneezing. In acute rhinitis we recognize this as a part of the disease, and the congested, irritative state of the mucous membrane would offer sufficient explanation for the frequency of this symptom. The old idea that whenever a person sneezed he was taking cold has long ago been exploded, for there are too many local and systemic conditions which will produce this irritative explosion without necessarily meaning a cold.

There are some people who might almost be termed "habitual sneezers," and with these the author does not class that numerous horde denominated as "hay-fever and rose-cold sufferers," who sneeze on the slightest provocation. With this class of patients it is the first thing that they are conscious of in the mornings; they are guilty of it whenever they pass through varying intensity of lights; the passing from a cool atmosphere into that of a warm room will cause it; and even excitements of various kinds must be reckoned in the same category.

How foolish then to treat this symptom alike in all individuals! It would extend his paper to an unpardonable length to go into any minute details, and the author therefore only mentions some of the causes of this symptom, and then we can see how necessary it is to study minutely

every case if we wish to treat the same successfully.

(*a*) There is a class of people who have what the author has denominated as hyperesthetic rhinitis. If we examine the nasal cavities of these individuals nothing abnormal will be discovered, and yet they will have spells of sneezing. If we touch the mucous membrane in these cases we find its extreme sensibility.

This condition the author has most often found in neurotic individuals, and in those who do not take enough outdoor physical exercise. Local treatment is almost valueless, and results will be best accomplished by close attention to hygienic laws and careful building up by the family physician.

(*b*) There is another class of cases where the nasal cavities will show nothing pathological, and yet by further careful examination such will be found to have a marked uric acid dyscrasia. The blood is loaded to excess, and the nasal and nasopharyngeal mucous membrane is constantly irritated. Think of spraying such an individual for the relief of his nasal symptoms!

(*c*) Then again we find those suffering with this symptom where a superficial examination of the nasal cavities reveals nothing abnormal, and yet by closer scrutiny and shrinkage of the membrane we discover a polypoid condition of the mucous membrane at the posterior end of the middle turbinate, and perhaps even a small polypus itself. Here is the focus of irritation, to be cured only by operative intervention, and yet too often have they already become the victims of the spray habit. These are some of the chief causes of the symptoms referred to, and yet none of us would be contented with even such a limitation.

3. Take another common subjective symptom—that of stenosis, or stoppage of free respiration through the nose. Here it is that the unskilled and inexperienced get in their deadly work. The tissue covering the turbinate bones, as we well know, is known as erectile tissue, such as swells and shrinks according to the amount of blood which it contains.

The most usual cause of nasal stenosis is a swelling of this tissue over the turbinates. This swelling and consequent blocking of the nasal passages may be due to either a true hypertrophy of the stroma elements of the membrane itself, or a swelling due to stasis, or an engorgement of the erectile spaces through the determination of more blood to the parts. If due to the latter the mucous membrane will shrink entirely under the application of cocaine, and if to the former the hypertrophic condition will still manifest itself. The treatment of these two conditions must necessarily differ, and here it is that the successful rhinologist has been benefited by keen observation. Reduction of the membrane in the first instance, by means of the cautery, snare, and knife, is frequently justifiable, but in that due to stasis we must first remove the cause of this condition if we would have permanent successful results.

Take an instance of the man who imbibes freely at night, and even during the day, and often eats inordinately. Every morning he suffers with nasal stenosis. But shall we cauterize or snare such a mucous membrane? Certainly not; open the bowels freely, stop the pernicious mode of living, and the nasal stenosis will take care of itself.

Dr. H. J. Mulford, in a very practical article, has called attention to the importance of urinalysis in the proper treatment of nose and throat diseases. He has shown, by reporting several cases, that the condition of the kidneys was in a large measure responsible for certain changes seen in the nose and throat, and which entirely disappear under systemic treatment. The specialist who is successful in his practice is the man of broad observation, who looks beyond the narrow confines of the organs which he daily treats, and remembers that the whole animal economy is involved in the successful function of the smallest portion of the human frame.

4. Take now an objective symptom of nasal trouble—that of a discharge—and let us see how unscientific it is to treat the symptom and not the cause of the symptom. Many a nasal cavity is daily sprayed for a discharge from the same without any reference as to where it originates. When we remember that a discharge from the nasal cavity may have its origin from the maxillary antrum, the frontal sinus, the ethmoidal cells, the sphenoidal sinus, and from a diseased condition of the mucous

membrane itself, one can readily see that such may be a symptom of various pathologic conditions. Hence, for this reason, a most thorough examination is necessary whenever a patient consults the physician for the relief of a catarrhal discharge from the nose. The author does not mention the signs and symptoms which enable one to make an exact diagnosis in such cases, his main object being to call attention to the manifold origin of this one symptom.

EXERCISES FOR TABES.

DANA gives the following directions in *Cornell University Medical College Reports,* vol. i, for the benefit of cases of tabes dorsalis:

The exercises are usually to be taken twice a day, and each exercise is to be done with the utmost care and precision by the patient.

EXERCISES FOR THE HANDS AND ARMS.

1. Sit in front of a table, place the hand upon it, then elevate each finger as far as possible. Then, raising the hand slightly, extend and flex each finger and thumb as far as possible. Do this first with the right and then with the left. Repeat once.

2. With the hand extended on the table, abduct the thumb and then each finger separately, as far as possible. Repeat three times.

3. Touch with the end of the thumb each finger-tip separately and exactly. Then touch the middle of each phalanx of each of the four fingers with the tip of the thumb. Repeat three times.

4. Place the hand in the position of piano playing and elevate the thumb and fingers in succession, bringing them down again, as in striking the notes of the piano. Do this twenty times with the right hand, and same with the left.

5. Sit at a table with a large sheet of paper and pencil, make four dots in the four corners of the paper and one in the center. Draw lines from corner dots to center dot with right hand; same with left.

6. Draw another set of lines parallel with the first, with the right hand; same with left.

7. Throw ten pennies upon the paper, pick them up and place them in a single pile with the right hand, then with the left; repeat twice.

8. Spread the pennies about on the table, touch each one slowly and exactly with the forefinger of right hand, then with forefinger of left.

9. Place an ordinary solitaire board on the table, with the marbles in the groove around the holes. Put the marbles in their places with right hand, same with left hand. Patient may, with advantage, practice the game for the purpose of steadying his hands.

10. Take ordinary fox-and-geese board with holes and pegs, and, beginning at one corner, place the pegs in the holes, one after the other, using first the right hand, then the left.

These exercises should be gone through with twice a day, and should be done slowly and carefully, with a conscious effort every time of trying to do one's best.

EXERCISES FOR THE BODY AND LOWER LIMBS.

1. Sit in a chair, rise slowly to erect position, without help from cane or arms of chair. Sit down slowly in the same way. Repeat twice.

2. Stand with cane, feet together; advance left foot and return it, same with right. Repeat three times.

3. Walk ten steps with cane, slowly. Walk backward five steps with cane, slowly.

4. Stand without cane, feet a little spread, hands on hips. In this position flex the knees, and stoop slowly down as far as possible, rise slowly; repeat twice.

5. Stand erect, carry left foot behind, and bring it back to its place; the same with the right. Repeat three times.

6. Walk twenty steps, as in exercise No. 3; then walk backward five steps.

7. Repeat exercise No. 2 without cane.

8. Stand without cane, heels together, hands on hips. Stand in this way until you can count twenty. Increase the duration each day by five, until you can stand in this way while one hundred is being counted.

9. Stand without cane, feet spread apart; raise the arms up from the sides until they meet above the head. Repeat this three times. With the arms raised above the head, carry them forward and downward, bending with the body until

the tips of the fingers come as near the floor as they can be safely carried.

10. Stand without cane, feet spread apart, hands on hips; flex the trunk forward, then to the left, then backward, then to the right, making a circle with the head. Repeat this three times.

11. Do exercise No. 9 with heels together.

12. Do exercise No. 10 with heels together.

13. Walk along a fixed line, such as a seam on the carpet, with cane, placing the feet carefully on the line each time. Walk a distance of at least fifteen feet. Repeat this twice.

14. Do the same without cane.

15. Stand erect with cane; describe a circle on the floor with the toe of the right foot; same with toe of left. Repeat twice.

Between the fifth and sixth exercises the patient should rest for a few moments.

SUPPLEMENTARY EXERCISE FOR THE ARMS.

Exercises for training the arms and the hands are much more cheerfully carried out if they have some variety and interest. The games of fox-and-geese and of solitaire, played with holes and pegs, are useful on this score. However, there are, in addition, certain simple devices which the author directs the patient to provide for and have in a tray, ready for his use, twice a day.

First, take a couple of small tumblers, containing in the one peas, and in the other shot. The peas and shot are poured out on a plate, and the patient is made to pick them up, and place them in their respective glasses. This is done at first with the eyes open, and then with the eyes closed.

Second, take a piece of flat cork, 8 x 6 inches, and a small box of pins. Pour the pins on a table or take the pins out and stick them in the pin-cushion to form the letters of a name. Trace outlines and stick pins in them. Do this with each hand.

Third, get a pack of cards; shuffle them with the eyes closed, if possible; if this is done badly at first, practice until they can be manipulated with the eyes closed. Then deal the cards in four packs, placing each card exactly over the other.

Fourth, get a box of small rubber balls, weighted by putting shot inside. These balls are taken out, and arranged in a row on the table, in accordance with their respective weights. Throw balls in a basket four feet away.

Fifth, get an ordinary copy-book; take a pen with a large handle, and copy as exactly as possible the model at the top of the page. After this has been done three times, cover the top of the page with a piece of paper, and try and reproduce the copy. The copy can be alternated or supplemented with the drawing of geometrical figures—triangles, squares, cubes, and so on.

GONORRHEA IN WOMEN—TREATMENT WITH YEAST.

As a result of chemical and bacteriological investigations, ABRAHAM (quoted in *Boston Medical and Surgical Journal,* March 24, 1904) concludes that yeast can kill gonococci. The action is chemical. Sterile yeast has this bactericidal action only when sugar is added. Living yeast acts by itself, it is true, but its activity is increased by the presence of asparagin.

For ease of application by the patient, and to keep the yeast cells alive, the yeast and asparagin is made with gelatin into vaginal suppositories. Such suppositories cause no disagreeable symptoms, and give good results in the treatment of gonorrheal diseases of the vulva, vagina, and uterus.

The suppositories affected gonorrheal salpingitis favorably only by preventing repeated infection of the tubes from the uterus.

OBSTETRICAL FORCEPS—POSTERIOR INTRODUCTION.

BRODHEAD (*American Journal of Obstetrics,* May, 1904) states that the posterior introduction of the blades of the obstetrical forceps may be used as a routine procedure, taking the place of the usual lateral introduction of the forceps; or it may be held in reserve for those cases in which it is difficult or even impossible to introduce the blades by the ordinary method. The technique is especially applicable to cases in which the

head is at or above the brim of the pelvis; for it is in these cases that the lateral introduction is often difficult. One of the great advantages of the posterior method lies in the fact that after the left blade has been passed up within the cervix the right blade must necessarily enter the uterus, for the left blade acts as a guide for the right, and consequently the difficulty of introducing the right blade within the cervix is obviated.

The solid-bladed forceps are especially useful, although the fenestrated instrument can be used. The fingers of the left hand are passed up into the vagina until the cervix is felt. The handle of the left blade is then seized by the right hand of the operator, and the blade is introduced along the fingers of the left hand to, then into, the cervix; after which it is carried upward and to the left, between the head and the lower uterine segment, the lower portion of the blade lying just anterior to the left sacroiliac synchondrosis. The left blade being held as a guide, the right blade is then carried up into the uterus, the convex outer surface of the right blade gliding along the concave inner surface of the left blade; and then as the tip of the blade approaches the sacral promontory, it is guided upward and to the right, the lower portion of the blade resting in front of the right sacroiliac synchondrosis. The concave surfaces of the blades now look directly anteriorly—the left to the left side of the promontory, and the right to the opposite side. If the occipitofrontal diameter of the head lies in the transverse or conjugate diameter of the pelvis, the blades are applied over the face and occiput, or over the sides of the head, as the case may be, by seizing the handles of the blades, one in each hand, and rotating each outward through an arc of ninety degrees. To do this the more easily the handles are first depressed, in order to give greater freedom for the rotation of the blades.

If the occipitofrontal diameter of the head lies in one of the oblique diameters of the pelvis, the handles are rotated in such a way as to bring the blades to the sides of the head, after which they are locked. In an L. O. A. position, for instance, the left blade is practically in position on the left side of the head; hence the right blade is rotated forward until it rests on the right side of the head. In many instances the introduction is very easy; and in some cases the procedure can be used where the usual lateral introduction fails.

When properly used the method is free from danger.

ICTERUS IN SECONDARY SYPHILIS.

While icterus in secondary syphilis has long been known, the literature on this subject is comparatively limited. CALVERT (*American Journal of the Medical Sciences,* May, 1904) has been able to collect only one hundred and twenty-seven cases. Two types occur, benign and grave.

In benign cases icterus develops rapidly without the usual digestive symptoms of catarrhal jaundice, as was first pointed out by Luton. In 75 per cent of the cases jaundice develops simultaneously with the secondary symptoms; in the remaining percentage of cases either before or after the onset of secondary manifestations. The character of the secondary lesions is unimportant. In degree the jaundice varies from a light tinge to a deep discoloration. Its course runs parallel with the secondary symptoms, and like them may recur. In duration icterus exists from a few days to two months, and if treatment is neglected may become chronic. Occasionally, varying degrees of sensitiveness are present in the hypochondriac regions. Two of Werner's cases presented enlarged livers. Spleen is of normal size. Urine shows ordinary findings. Feces more or less decolorized. Pruritus seldom. Werner noted xanthopsia three times.

In the grave cases icterus develops as above recorded, but on the fifth or sixth day delirium, hemorrhage, purpura, or coma, often followed by death, may develop in a remarkably short time.

The diagnosis of this manifestation is usually easy. There is a history and evident signs of syphilis. The secondary eruption may be present when the patient is first examined. The following points are most distinctive:

1. Appears in secondary stages of syphilis.

2. Simultaneous appearance with secondary lesions.

3. Influenced by specific treatment.

4. May vary in degree as the secondary eruption varies in intensity during the course of the disease, and, like the eruptions, may recur.

5. Rapid appearance without digestive disturbances.

Even the grave cases if properly treated are rarely fatal. Treatment is that ordinarily employed for syphilis in this stage.

INTRA- AND EXTRA-ARTICULAR INJECTIONS IN THE TREATMENT OF TUBERCULAR OSTEOARTHRITIS.

By the combination of intra-articular injections of iodoform solution and extra-articular injections of 10-per-cent chloride of zinc solution, LANNELONGUE (*Revue Thérapeutique,* No. 5, 1904) has found that the duration of treatment in tubercular osteoarthritis has been greatly reduced. The intra-articular injection consists of olive oil 90, ether 40, iodoform 10, and creosote 2 parts. It is given without anesthesia, after withdrawing any effusion which may be present. The amount injected varies with the size of the joint, about 30 cubic centimeters being necessary for the knee-joint of an adolescent. The resulting articular swelling facilitates the introduction of the extra-articular injections, which should be given four or five days later.

The chloride of zinc solution is deposited circumferentially, at intervals of 2 centimeters, just external to the synovial membrane. From 30 to 80 drops may be employed in any given case, according to the size of the joint. When injected just beneath the skin, a small slough may result; when injected into the joint, an acute aseptic arthritis is produced. Both accidents may be avoided with proper care.

Nine patients, all under eighteen years old, have been cured by this method. The average duration of treatment before the patient resumed walking was four to six months. Immobilization of the joint should be continued for the full six months, and passive movement of the joint at any stage should be condemned. Ordinary use of the limb will restore all movements that are essential. Massage of the muscles and cutaneous frictions are indicated during the treatment; the joint itself should never be handled for any purpose.

For the hip and shoulder intra-articular injections is the only treatment advisable. For the knee, ankle, wrist, and elbow, extra-articular injections also should be employed. For the tarsus and carpus, extra-articular injections alone suffice.

RESUSCITATION.

A series of studies have been conducted by CRILE (quoted in *Monthly Cyclopedia of Practical Medicine,* March, 1904), having for their end the resuscitation of animals apparently dead, with somewhat remarkable results.

When asphyxia caused failure of the heart and respiration, vigorous artificial respiration usually restored their function, when administered within a few seconds. It was, however, rarely effective after forty seconds. By the addition of saline infusion a larger proportion of animals could be resuscitated after the lapse of a little longer time. Rhythmical pressure upon the heart, either through the thorax by pressure upon the ribs over the heart or direct pressure within the thorax, was also an aid. The effect of the traumatism to the heart by the direct method partially counterbalanced the benefit from this measure.

Nitroglycerin, alcohol, and digitalis were useless; rapidly alternating the posture, head up, then head down, was not effective.

Suspending the animal head down and making rhythmical pressure upon the heart was an effective method. The addition of saline infusion increased the effectiveness.

Animals apparently dead for periods up to fifteen minutes were resuscitated by the combined effect of artificial respiration, rhythmical pressure upon the heart, and the infusion of adrenalin. When the blood-pressure had risen to 30 millimeters Hg. or more, the heart began to beat and the blood-pressure was rapidly restored.

Adrenalin, when injected directly into the chamber or into the wall of the heart, caused fibrillary contractions, after which the heart could not be resuscitated. Experiments in which saline infusion was substituted for adrenalin, and which were

unsuccessful, were immediately successful on adding adrenalin.

In a patient with crushed skull, whose heart had ceased beating for nine minutes, resuscitation of the heart for thirty-one minutes was made by this method. Another patient, apparently dead from a severe crushing of the base of the skull, was partially resuscitated twenty-four minutes after the apparent death.

HOUR-GLASS STOMACH.

The symptoms and signs of hour-glass stomach, according to MOYHIHAN (*British Medical Journal*, Feb. 20, 1904), enable a positive diagnosis to be made in the great majority of cases.

If the stomach-tube be passed and the stomach washed out with a known quantity of fluid, the loss of a certain quantity will be observed when the return fluid is measured. Thus, if 30 ounces be used, only 24 ounces can be made to return.

If the stomach be washed out until the fluid returns clear, a sudden rush of foul, evil-smelling fluid may occur; or if the stomach be washed clean, the tube withdrawn and passed again in a few minutes, several ounces of dirty, offensive fluid may escape. The fluid has regurgitated through the connecting channel between the pyloric and cardiac pouches.

If the stomach be palpated and a succussion splash obtained, the stomach-tube passed, and the stomach apparently emptied, palpation will still elicit a distinct splashing sound. This is due to the fact that only the cardiac pouch is drained; the contents of the pyloric remain undisturbed and cause the splashing sound on palpation. The sign of paradoxical dilatation is best elicited after washing out the stomach in the ordinary manner. When the abdomen is examined at the completion of the washing, and when the stomach has been apparently drained quite dry, a splashing sound is readily obtained, for some of the fluid used has escaped into the pyloric pouch through the connecting channel.

Von Eiselsberg observed in one of his cases that on distending the stomach a bulging of the left side of the epigastrium was produced; after a few moments this gradually subsided, and concomitantly there was a gradual filling up and bulging of the right side.

Von Eiselsberg also called attention to the bubbling, forcing, "sizzling" sound which can be heard when the stethoscope is applied over the stomach after distention with CO_2. If the two halves of a Seidlitz powder are separately given and the stomach be normal or dilated, no loud sound is heard anywhere except at the pylorus; if a constriction is present in the stomach, a loud, forcible, gushing sound can be easily distinguished at a point 2 or 3 inches to the left of the middle line.

A sign of great service in establishing a diagnosis of hour-glass stomach is as follows: The abdomen is carefully examined and the stomach resonance is percussed. A Seidlitz powder, in two halves, is then administered. On percussing, after about twenty or thirty seconds, an enormous increase in the resonance of the upper part of the stomach can be found, while the lower part remains unaltered. If the pyloric pouch can be felt or seen to be clearly demarcated, the diagnosis is inevitable, for the increase in resonance must be in a distended cardiac segment. If the abdomen be watched for a few minutes the pyloric pouch may sometimes be seen gradually to fill and become prominent.

When both pouches of a case reported by Moyhihan were distended with CO_2, alternate pressure upon them showed unmistakably that they communicated through a very narrow orifice, for the one could be emptied slowly into the other, and the fluid could be felt to ripple gently through. The diagnosis in such a case is simplicity itself. In another case a distinct notch was seen at the lower border of the inflated stomach.

When the deglutable india-rubber bag of Turck and Hemmeter is passed and distended, the bulging caused thereby is limited to the cardiac pouch, which lies to the left of the middle line.

The two aids to diagnosis of greatest value are, it will be seen, the washing out of the stomach and its inflation with gas by the administration of a Seidlitz powder in two portions. The fluid used for the washing must be carefully measured before use; the tube is then passed and the stomach emptied, the contents set aside in a separate dish, and the washing

commenced. All the fluid now returning is collected in a separate vessel and carefully measured.

As to the treatment, in many cases no single operation will suffice to fill all the requirements. In many cases of hour-glass stomach there is a narrowing, not only in the body of the stomach, but also at the pylorus. This illustrates the undoubted fact that gastric ulcer is often multiple.

If gastroenterostomy is performed from the cardiac pouch, the pyloric pouch remains undrained. Symptoms of stasis are then observed, and a second operation is necessary. An anastomosis from the second pouch is obviously futile. A gastroplasty which relieves the obstruction in the body of the stomach does not deal with the pyloric narrowing. In many cases it will be necessary to perform a double operation, gastroenterostomy from both pouches, gastroplasty combined with gastroenterostomy from the pyloric pouch, gastrogastrostomy with gastroenterostomy, or gastroplasty and pyloroplasty.

GANGRENE OF THE HOLLOW VISCERA.

The more complete the occlusion of the mesenteric vessels—*i. e.,* the more extensive the area suddenly deprived of blood-supply—the more sudden and overwhelming will be the symptoms. According to PARK (*Annals of Surgery,* April, 1904), the most significant of these will be as follows:

1. *Sudden onset,* which in the most severe cases can usually be recorded by the watch, since patients indicate nearly the exact moment when they begin to feel severe pain, while the other symptoms follow so quickly as to make it a sudden and overwhelming affection.

2. *The intensity and character of the pain,* which is sometimes paroxysmal, at others continuous. It is nearly always severe, and often agonizing, and scarcely to be quieted by an ordinary opiate. Sometimes it is spoken of as an intense colic; even mild degrees of the lesion are often accompanied by sufficient pain to present a prompt and very grave indication. On the other hand rare instances are known in which the disease has run its course almost without pain.

3. *Diarrhea* is usually an early symptom, the evacuation being profuse, and bloody after a few hours, if not at first. It is met with in from 30 to 40 per cent of cases.

4. The *obstructive symptoms* are sometimes those of ileus, sometimes those of constipation, which may be followed by diarrhea.

5. *Vomiting* usually occurs early, the vomit being bloody or even, after a few hours, fecal.

6. *Rapid pulse,* which is rarely less than 110, and may run as high as 130 or 140.

7. *Subnormal temperature,* which, though not constant, may be an occasional symptom.

8. *Meteorism,* which begins early and becomes very marked.

9. *Abdominal rigidity,* which with the previous symptom prevents palpation or the discovery of anything which may ordinarily be made out by the sense of touch. The two symptoms constitute a most distressing and at the same time a most indicative feature, and by themselves indicate the gravity of the situation, while affording little or no opportunity for relief.

10. Later may be added, perhaps, evidence of the presence of fluid in the peritoneal cavity. In connection with the symptoms stated above, this can only be regarded as adding to the gravity of the situation. Yet a little later, though perhaps not much, will be added the features of complete collapse, delirium, etc., which precede death. When the inferior mesenteric artery is involved, it is said that tenesmus becomes a rather prominent characteristic, since the colon and the rectum are partly supplied from this vessel. When mesenteric thrombosis or embolism is suspected, one should carefully search over the body for similar lesions elsewhere; it would add to the certainty of the diagnosis should these be discovered. Küssmaul stated that pain about the navel indicates a lesion of the superior mesenteric artery, while when referred rather to the sacrum it means involvement of the inferior vessel. Litten believes that the so-called tea-ground stool indicates movement of the upper vessel, while fresh blood in the stools is likely to come from the branches of the lower. A dis-

tinction between occlusion of the artery and vein is most difficult to establish, and is practically impossible unless evidences of the embolic or thrombotic process be found elsewhere. And even upon autopsy the deeper parts may be so softened and disintegrated that the ordinary post-mortem evidences of one or the other may be lacking.

Diagnosis is difficult and often impossible, but in these cases, perhaps more than in any others, the paramount indications for operation are all present; the intense pain, the collapse, the abdominal rigidity, which surely can be recognized within the hour when they occur, of themselves call for operation, without of necessity waiting for corroborative indications of vomiting of blood, meteorism, or other symptoms.

The only recorded case of mesenteric occlusion not proving fatal known to the writer is that reported by Chiene, as met with in the dissecting-room. Here the branches of the celiac and mesenteric arteries were found filled with the injecting material, while their main trunks were completely occluded by an old embolic process. The celiac axis was changed into an old fibrous cord, and both mesenteric arteries were obliterated. The blood evidently reached the mesenteric arteries through the left and middle colic vessels, while the extraperitoneal vessels served for communication with the internal iliacs. After opening the abdomen the treatment of every such case must be a law unto itself.

In conclusion the author emphasizes the following general statement: That in the presence of sudden and acute symptoms, which include intense abdominal pain, collapse, and rigidity of the abdominal walls, very little time should be wasted in speculation as to the character of the lesion. This triad of symptoms constitutes a reliable and exacting demand for abdominal section, followed by such suitable measures as the case may call for or permit. No such case as would be lost without an operation would be lost in consequence of it, while every case must, without it, of necessity prove fatal. Of these cases, as of most others in the hands of competent men, it should be said that they die in spite of operation, not because of it.

TREATMENT OF CONGENITAL HIP-JOINT DISLOCATION.

Schede has found that in most cases the greatest impediment to reposition and retention of the femoral head in the acetabulum in congenital hip luxation is anteversion of the femoral neck. To overcome this he performs a transverse linear osteotomy of the femur, nails the head into the acetabulum by means of a gold nail through the trochanter, and places the lower fragment against this, rotating it outward sufficiently to overcome the pathologic anterior rotation of the upper fragment.

VOGEL (*Deutsche Zeitschrift für Chirurgie,* Bd. lxxi, S. 222) reports concerning 38 cases thus treated from the Schede-Bier clinic. In the course of over seven years, 242 congenital hip luxations were treated by them in an operative way; 22 of them were boys, 220 were girls; 133 had unilateral subluxation, 109 bilateral. In age they varied between fifteen months and fifteen years. The patients were treated preferably by reposition into the acetabulum, but at first, especially, many had to be treated by transposition. The proportion of repositions is getting greater as the patients are being treated at an earlier age.

For bloodless reposition the child, after being narcotized, has weights attached to the limb (40 to 100 pounds), the trochanter is elevated somewhat, the leg is abducted, and the head of the bone rotated inward. Within a short time the head of the bone will come down and enter the acetabulum with an audible crack. Lorenz's maneuvers are then gone through to drive the head further into the cavity and to overstretch the capsular ligament. The limb is fixed in a position of abduction and internal rotation, and a plaster cast is applied from the toes to above the hip. If, after eight weeks, the Roentgen picture shows the head of the bone in proper position, a short cast to above the knee is applied to permit the child to walk.

In bad cases layers of felt are inserted through a window in the cast and made to press the head of the bone more firmly into the cotyloid cavity. Of 38 patients, 24 were treated by osteotomy and nailing, 72 per cent of them being replaced into the acetabulum and 28 per cent transposed into some favorable position.

COLITIS—OPERATIVE TREATMENT.

Operation is not recommended by HENNING (*Memphis Medical Monthly,* April, 1904) as a primary step in colitis, but only in the obstinate cases. He warns, however, against delaying operation until the patient is too weak.

It is advisable to perform the work in two steps. The simplest and safest course is to make an incision two or three inches long in the right iliac fossa parallel with the fibers of external oblique, the center of which lies a little to the outer side of McBurney's point, down to the aponeurosis. This is split in the direction of the fibers, well retracted, and then the internal oblique fibers are separated in the opposite direction by blunt dissection and then retracted. The operator should next separate the transversalis fibers in the same manner, bringing him to the subperitoneal fat. These structures are now divided, then the peritoneum. The colon will generally be found just beneath this opening. Sometimes the mesentery is very short in this place; if so, a good use of the appendix can be made by bringing it up into the opening, stitching it all round to the peritoneum fascia. After waiting about twenty-four hours for adhesion, the appendix is cut off external to the sutures and adhesions. This is followed by the introduction of a tube for irrigation through this channel. If the mesentery will admit, the colon may be brought up to the wound and stitched along with the peritoneum to the fascia and muscle fibers. The wound is now to be packed with gauze, and the operator waits twenty-four hours for adhesions. It is thus easy to remove the gauze and make a small opening into the gut for the introduction of an irrigating tube. After the introduction of the tube into the colon (a medium size catheter can be used for this), it is connected with a fountain syringe containing an irrigating solution. A rectal tube now introduced into the rectum for three or four inches permits free exit of water which has passed through the entire length of colon, thus washing it very thoroughly.

Plain, sterile water should be used for the irrigation, in sufficient quantity to thoroughly cleanse the tissue until the water escaping through the rectal tube is clear. After this a solution of nitrate of silver, varying in strength from twenty to sixty grains to the quart, or a solution of nitric acid one drachm to the pint, is used. The nitrate of silver irrigation should be followed by a normal saline solution, and the nitric acid by plain water, the strength and frequency with which the stronger irrigations are used depending upon the progress of the particular case. The bowels should be washed out daily with some antiseptic solution, such as weak bichloride. Care should be taken that no portion of a poisonous solution is ever left in the gut. The tube may be held in place in the colon with adhesive plaster for three or four days, then removed and reintroduced as needed for irrigation. In many cases the wound will close of itself in a few weeks; if not, a secondary operation should be done.

EPILEPTIFORM NEURALGIA—INTRACRANIAL RESECTION OF THE SECOND DIVISION OF THE FIFTH NERVE.

Some three years ago HUTCHINSON (*Lancet,* April 16, 1904) advanced the proposal that the so-called excision of Meckel's ganglion should be given up in favor of intracranial division of the superior maxillary trunk just above the foramen rotundum. In the middle fossa of the skull the whole of the superior maxillary trunk, before it has given off any branches, can be exposed. Here it can be not only divided, but a considerable part of it can be excised, so that there will be no chance of subsequent union. The amount of the nerve available at this point for excision varies somewhat in different subjects, but from one-third to half an inch can be resected. The trunk should be divided just at the foramen rotundum, and again where it leaves the Gasserian ganglion. Cases in which such an operation is justified are not numerous, but Hutchinson has had the opportunity in one case.

A ship's officer, nearly sixty years of age, had suffered for years from intense pain in the right cheek and upper jaw. The neuralgia was typically epileptiform, the attacks becoming more and more frequent during the last four years. He had had a number of teeth removed without the slightest relief, and medicines were

equally unavailing. The distribution of the neuralgia was always the same, and the parts were very tender, though during an attack some relief was obtained by the patient violently grasping the tissues of the cheek.

The operation was performed with the patient fixed in a dentist's chair in order to lessen the trouble from venous hemorrhage. A horseshoe flap was turned down from the temporal region, having its base at the zygoma, the flap including part of the temporal muscle and the pericranium. With a large trephine and cutting forceps the subjacent bone was removed and the dura mater was exposed. As in the operation for removal of the Gasserian ganglion, the dura mater and the temporosphenoidal lobe were then carefully pushed upward and inward, making for the foramen rotundum as the landmark. (In this respect the two operations differ, as in dealing with the Gasserian ganglion the foramina spinosum and ovale are first sought for.) Considerable difficulty was met with owing to the thin and fragile character of the dura mater, and some cerebrospinal fluid escaped. Ultimately the trunk of the superior maxillary division and part of the Gasserian ganglion were thoroughly exposed, a broad spatula of soft metal being used to retract the dura mater and the brain. The whole of the nerve was then removed, a small drain was subsequently inserted, and the flap was sutured in position. None of the bone removed was replaced. Primary healing followed, and no complication of any sort occurred. The patient returned a month later to his duties, and has made regular ocean voyages ever since (12 months). Relief is permanent, with not the slightest recurrence. The anesthesia is most marked over the cheek and the right superior maxillary bone; it involves also the soft palate and the lower eyelid. He can eat and talk with perfect comfort, whereas before the operation both acts brought on spasmodic pain. The scar is hardly to be noticed, the gap in the bone has practically filled up, and there is, of course, no paralysis of masticatory muscles on that side such as follows removal of the Gasserian ganglion. No recurrence is likely to take place.

It would be erroneous to suppose that the operation is an easy one: the depth of the nerve trunk (three centimeters or more from the wall of the temporal fossa) and the troublesome oozing in a narrow space where it is essential to see and to define a nerve-trunk of small size prevent this. It can be safely asserted, however, that the intracranial route is at least as easy as the facial one, and without any doubt it affords the more certain access.

CATHETER STERILIZATION.

A series of experiments have been conducted by GOLDBERG, NANCREDE, and others (quoted in *Boston Medical and Surgical Journal,* Feb. 4, 1904) to determine the most practicable method of sterilizing catheters.

On catheters that had been soaked in purulent urine for one or more hours, fluid antiseptics proved entirely unreliable. A current of steam at 100° C. was effective. Sterilization was always readily and easily accomplished by boiling in water five to ten minutes in a vessel longer than the instruments. Washing with soap and water before boiling is recommended.

The larger the size of the instrument the quicker the sterilization. Preliminary flushing under a water-tap lessens the time required for boiling by three-quarters. Formalin vapor needs twenty-four hours in order to sterilize. English webbing catheters can be boiled indefinitely in a saturated solution of ammonium sulphate, provided the instruments are kept from contact with the bottom of the vessel. Ten minutes is not too long a time to boil the smaller instruments.

A mixture of glycerin, water, and tragacanth, with 1:500 mercury oxycyanate, is recommended as an ideal antiseptic lubricant for catheters and sounds.

SEPTIC WOUNDS—SOME CLINICAL OBSERVATIONS ON THEIR CARE.

For some years CHUTE (*Boston Medical and Surgical Journal,* April 21, 1904) has watched a considerable number of septic wounds under various sorts of treatment, with the idea of determining if possible which method gives the best results.

Dry, sterile gauze dressings are preferable; their greater power of absorption

most efficiently drains the wound. Their slight mechanical irritation and comparative dryness make the granulations more active. Moist dressings are indicated, however, when sterile dressings cannot be obtained, or when little dependence can be placed on the aseptic skill of the applier of the dressing.

Antiseptic poultices are not to be preferred to sterile dressings; at times there is danger in their use. In case irrigating fluids are necessary, when from some unusual reason the operator is unable to make a wound of such shape that it can be properly dressed, sterile salt solution should be the irrigating fluid used.

Peroxide of hydrogen should be avoided. In partly closed cavities or loose tissue its gas production may make it a spreader of infection.

Dry, sterile gauze meets the indications in the routine treatment of the great majority of septic wounds better than any other material.

It is necessary to keep the wound as free as possible from discharge, hence the dressing should be changed whenever it becomes pretty well saturated. In large wounds this means changing the outer dressing oftener than the inner dressing.

The gauze should not be so packed that it will interfere with drainage. On removing gauze from a wound cavity, it is desirable to make pressure near the margins, and to watch for any drops of pus on the granulations; this is to guard against overlooking any pocket which is not being properly drained. If the wound is not dry on the removal of the dressing, it should be wiped dry before the pressure is made. A hand mirror is often of help in inspecting deep cavities such as those left after opening an abscess about an appendix. When there are sloughs to separate, or places where the granulations are gray or flabby, increased pressure should be made at these points, as the dressing is being replaced. When the whole wound surface is bright, the gauze should be packed in loosely; it should, however, come in contact with the whole granulating surface, that the wound may be kept as dry as possible. When a wound is covered with red, healthy granulations, the time of healing may be reduced by secondary suture. This is only worth while in relatively large wounds. The simple device of strapping a wound with gauze strips and collodion applied in such a way as to bring the surfaces together is occasionally sufficient to make them adhere. It always lessens the time required for a wound to fill in. It is probably unnecessary to say that in dressing all septic wounds the general aseptic technique should be carefully followed in order to avoid a polyinfection.

MALIGNANT ANNULAR STRICTURE OF THE LARGE INTESTINE.

The insidious onset and progress of the disease is apt to be misleading, and delay its recognition until it is too late for curative treatment; neither pain nor swelling supervenes in many cases until chronic obstruction has occurred. Thus in six out of ten cases cited by WALLACE (*Scottish Medical and Surgical Journal,* April, 1904) obstruction was the reason for medical advice being sought.

When in this affection the patients are seen early, the significance of the premonitory symptoms, constipation and general abdominal pain, is not readily recognizable, and there is delay in diagnosis until later indications give a clue to the cause. These are: (*a*) A continuance of the pain (or rather abdominal discomfort) and constipation, the latter often being masked by apparent diarrhea; (*b*) distention and borborygmi; (*c*) paroxysmal pain, often with visible peristalsis; (*d*) loss of weight; (*e*) a palpable tumor; (*f*) chronic or acute obstruction.

In the ten cases under review before obstruction supervened, constipation was present in all—in two, alternating with diarrhea. Loss of weight was present in seven; distention and borborygmi in four; palpable tumor in four; visible peristalsis in only two.

Ballooning of the rectum was present in one case in which the tumor was at the hepatic flexure. In one patient who suffered from diarrhea, the stools when formed were much smaller than normal. This is not of the least diagnostic value, as it is often absent, and when present may be accidental and dependent possibly upon increased tonicity of the anal canal. Passage of mucus and blood was observed in none of the cases by the patient.

only one, after purgation, the nurse observed a little blood.

In no one of the six cases who sought advice on account of obstructive symptoms was there a palpable tumor, and in four of them the tumor was an annular stricture with no adhesions to omentum or adjoining bowel. In the four other cases a tumor was palpable on external examination, and in two was detected at the first examination. In the two where it was not detected at first the symptoms complained of were pain and constipation alternating with diarrhea, and later loss of weight in one, and in the other pain, constipation, and loss of weight. This latter patient had been treated for gastric symptoms for four months. At the end of that time there was resistance in the right hypochondrium and an indefinite mass was detected—at the operation an annular stricture with extension to the peritoneal surface and modules in the omentum were found.

Six of the patients were females, and four males, and the average age was sixty-two years. The youngest patient was forty-seven, and the oldest eighty-two.

Five tumors were at the splenic flexure, three at the hepatic flexure, and two in the iliac portion of the colon. It is usually stated that 60 per cent of all strictures of the large intestine (excluding the rectum) are in the sigmoid flexure. Treves states that out of 101 consecutive cases in University College Hospital the site was: rectum and sigmoid, 94; descending colon, 1; splenic flexure, 2; transverse colon, 1; hepatic flexure, 2; ileocæcal valve, 1. While Maylard in fifty cases of cancer of the colon gives: sigmoid flexure, 13; descending colon and splenic flexure, 10; transverse colon and hepatic flexure, 4; ascending colon, 4; cæcum, 13; and ileocæcal valve, 6.

Surgical treatment should be carried out if possible during a quiescent period, when the intestine is empty.

Three operative procedures are possible: (1) Excision and end-to-end anastomosis; (2) short-circuiting; (3) colostomy.

In a case of chronic obstruction with distention and symptoms indicative of probable annular stricture of the colon, the incision should be made through the right rectus close to the linea alba, with its center opposite the umbilicus. This position makes it possible to examine with comparative ease the probable seats of stricture. When the cause is apparently removable, a second incision should be made in the most favorable position for excision of the tumor. In all cases the first incision should be made of such length as to give free access at once for rapid correct diagnosis. Made through the rectus and at this level, the risk of ventral hernia is not great. An artificial anus in this position is favorably placed for cleanliness, and the rectus acts as a fairly good sphincter.

Colectomy is the most favorable, but during obstruction, unless the patient's condition is good, and the distention of the bowel slight, it can only be done as a secondary procedure. The bowel as a rule must be opened and the tumor left outside of the abdomen to be removed later. When the disease cannot be removed wholly, this operation should not be performed.

To short-circuit means almost invariably the junction of the ileum to the colon, preferably to the transverse colon. It is desirable to empty the gut, and this is not difficult to do successfully, if care be taken to avoid sepsis by drawing it well out and carefully packing with gauze, so that the risk of soiling is reduced to a minimum. Frequently, after short-circuiting, the tumor decreases in size, and the life of the patient is prolonged for years.

The third procedure, colostomy, is the least desirable, but is often the only justifiable measure. In five of the cases this was adopted.

The part of the colon to open depends upon the site of the tumor—the further from the cæcum the better, as the after comfort of the patient depends largely upon the feces being solid.

The author reports the following results:

Two colectomies. One recovery, patient living thirteen months after operation, and apparently quite well; one death on fourth day from peritonitis.

Three ileocolostomies. Two recoveries; one death on the fifth day from peritonitis. (The operation was during a subacute obstruction, the coils of intes-

tine being much distended. At the autopsy there was a small gangrenous area at the inferior angle of the junction, and the sutures had torn through.)

Five colostomies. Four recoveries; one death from exhaustion in a patient sixty-five years of age.

TUBERCULAR MENINGITIS IN ADULTS.

An interesting résumé of eighteen cases of tubercular meningitis in adults is given by JACKSON in the *Boston Medical and Surgical Journal* of May 12, 1904. Seven of the cases were between eighteen and twenty-five years of age, eight between twenty-five and thirty, and three between forty and fifty years. In one case no history was obtainable; in three cases there was a history suggestive of a preceding subacute tubercular process. Fourteen of the cases gave no history of a disease preceding the present attack. In only two cases did the pathologist find the evidence of an old healed tubercular process. The general examination failed to suggest a probable tubercular trouble, except possibly in two instances. In fifteen cases the disease was abrupt in its onset, or preceded by symptoms of short duration. In three cases only was there a history of symptoms extending over a period of several weeks, and in these there was a general acute miliary tuberculosis in addition to the tubercular meningitis. The prodromal symptoms in all were indefinite, symptoms suggestive of many acute febrile diseases rather than pointing toward a definite cerebral trouble. Only four of the cases laid any special stress on headache and vomiting, though headache was present to a certain extent in other cases. Three were delirious, and in one the mental symptoms were so marked that some form of insanity was considered possible. In the other cases the symptoms were described as weakness, malaise, fever, and cough, or stomach trouble.

The course of the disease as it progressed in the hospital was that of some cerebral trouble. One-third of the cases presented the type described as typhoidal delirium; two-thirds presented varying grades of stupor and delirium. A small number were noisy and delirious, but the disease in adults is not marked usually by the same headache, photophobia, cerebral cries, and extreme restlessness that make up the picture of the disease as usually seen in children.

In all the cases but one the pulse was slow at the first part of the acute stage. The pulse-rate was usually from 60 to 70, until the last few days of the disease, and occasionally it was as low as 50. In the last two or three days of life the pulse-rate was 130 to 150, even rising in a few cases to 180, but the average was 140. The marked discrepancy between the pulse and the general condition proves that the pulse-rate is dependent upon cerebral trouble. The temperature was unimportant, rarely over 102.5°, usually from 100° to 101°, and in one case normal or under after the second day.

The white count in nine cases showed on the average a much smaller number than in acute cerebrospinal meningitis. In one case 23,000, in another 17,400 white cells were counted; in the other cases the count was at or below 12,000.

Lumbar puncture was done in eight cases; in all the fluid spurted out, showing that it was under pressure. In each case the fluid showed no growth and was almost clear, with only a few flocculi. In one case the bacilli of tuberculosis were found on microscopic examination.

Examination of the fundus oculi gave little information; in only one case was neuritis found. Retinal tubercles are rarely found. In four cases the fundus is distinctly described as normal.

In three cases no paralyses were noted, but these patients were very sick, and in two death ensued shortly after entrance to the hospital. In one case extensive and marked paralyses were present.

There was a very slight facial paralysis in addition to strabismus in two cases, while paralysis was found limited to one or more muscles of the eye in twelve. Paralysis of tubercular meningitis does not differ from that of cerebrospinal meningitis, but the paralysis found in syphilis, cerebral edema, and trauma is usually more extensive.

Other signs of cerebral trouble were found, but less frequent and less marked than in cerebrospinal meningitis, namely, retraction of the head, Kernig's phenomenon, and opisthotonos, the last mentioned sign being found only once.

After the onset of the acute symptoms three died in less than two weeks, and several died in less than one week. Two cases lived for three weeks.

At autopsy in sixteen of the cases small areas of chronic tuberculosis were found, small areas in the lungs in nine cases, caseous bronchial lymph glands in seven, and chronic tuberculous hip in one.

Acute miliary tuberculosis was found in the lungs in seven cases, and general acute miliary tuberculosis in five.

In eight the cord was involved as well as the meninges of the brain, which were involved alone in ten cases.

LARYNGECTOMY FOR CANCER.

The mortality for laryngectomy is 35 per cent for all cases up to 1897. Of the cases operated on from 1888 to 1898, the death-rate has fallen to 14.5 per cent, with a corresponding fall in the number of recurrences—11.2 per cent as compared with 30.3 per cent. This marked improvement GERMAIN (*Journal of the American Medical Association,* April 9, 1904) believes to be due to the new methods, which aim to avoid sepsis and to do away with aspiration pneumonia. These two conditions have been responsible for a majority of the fatal cases, while reflex inhibition of the heart through the superior laryngeal nerve and death from vagus degeneration deserve mention. Recurrence is less frequent because of early and more radical operation.

Briefly stated, the present operation seems to be divided into two steps: (1) preliminary tracheotomy; (2) after a few days or weeks laryngectomy in the Trendelenburg-Rose position. Cocainization of the superior laryngeal nerve is desirable. Primary suture of the pharyngeal and esophageal wounds saves the patient weeks in convalescence, while turning the tracheal stump forward and sewing it in the lower wound angle obviates the necessity of a permanent cannula, and in a great measure prevents aspiration pneumonia. That these are improvements on the old methods is proven by recent statistics.

Gluck reported thirty-four cases with thirty-one recoveries, a mortality of only 8.5 per cent, while Graf, of von Bergmann's clinic, reported nine cases with one death. Lincoln reported seven cases with one death resulting from vagus degeneration after two weeks.

Concerning the after-care of these cases there is little to be said. Rectal feeding is usually necessary for a few days, followed by cautious esophageal feeding, then liquid and solid food in the order given. In view of some of the cases recorded the artificial larynx would seem to be unnecessary. In these patients a distinct pseudo-voice was developed, and Goldstein had a patient who could sing a simple song of more than two tones. In all of these cases there was no connection between the trachea and the pharynx, and it was thought that the air necessary for the production of sound was collected in a dilatation of the pharynx, and probably the upper fourth of the esophagus. The slit representing the new larynx was formed between the tongue and the posterior pharyngeal wall. That partial laryngectomy is the operation of election there can be no doubt, but the last decade has served to rob total laryngectomy of many of its terrors.

CARE OF THE LYMPHATICS DURING AND AFTER SURGICAL OPERATIONS.

GWYER (*Annals of Surgery,* May, 1904) reports the case of a boy of six who had the lymphatic constitution, and after an ordinary operation for the removal of a few lymphatic glands from the axilla developed great restlessness, high fever, rapid pulse and delirium, and died within twenty-four hours.

This experience impressed upon the writer the necessity of heeding the possibility of infection through the lymphatic channels, and of closing such orifices as far as possible, not only at the time of operation, but subsequently. He describes as follows the plan he has tried for the past year: The diseased glands are dissected to the point of exit of the vessel, which is then tied in the same manner as an artery or vein. This is valuable because the arterial supply enters at about the same point as the emergence of the lymphatic, and there is less hemorrhage than otherwise. The lymphatic spaces are cared for in two ways: When a good deal or all of the work can be done before

the abscess is opened, as in excision of a piece of rib for empyema, all that is possible is done in the cleanliest manner; then, before opening the pleural cavity, sterilized vaselin or a thick ointment (such as iodoform ointment made with vaselin or lanolin) is rubbed thoroughly over the entire raw surfaces. This occludes the lymphatic spaces and smaller vessels until such time as there is no longer danger of absorption through them. The chest is then opened.

In case of ordinary abscesses, as soon as the pus is evacuated and the cavity washed out, it is swabbed dry, and enough ointment or vaselin is thrown in to fill it. This is not a new method, but its use has been confined to treatment of suppurating bubo, rather than to abscesses elsewhere.

In the after-treatment of infected cases, particularly such as have cavities, it is well to fill them with ointment at each dressing, or occasionally, as may be.

The ointment should be soluble (bismuth or oxide of zinc is not to be recommended), while there should not be enough poisonous material in it, such as iodoform, to affect the patient.

This method eliminates, in part at least, one of the causes of death in lymphatic constitution. The writer's cases have done better, have run less temperature, have had less local symptoms and fewer complications, where this method has been used.

KIDNEY DECAPSULATION.

Decapsulation of the kidney has been practiced by REYNOLDS (*Boston Medical and Surgical Journal*, Feb. 4, 1904) in four cases, all of which recovered. Two may be called cured, one relieved, while the remaining one is probably unrelieved. His theory of the operation differs slightly from the prevailing one, and accordingly he adopted a somewhat different method for its performance.

Observing that exploratory operations in connection with the kidney are generally followed by symptomatic relief, and observing also that when an exploratory incision was carried through the capsule and into the substance of a kidney the edges of the capsule usually retracted widely, leaving a portion of the kidney surface exposed, as though the organ were too large for its capsule, this operator concluded that the relief of renal pain by exploratory operation was probably due, first, to the separation of the capsule from painful adhesions to surrounding tissue; secondly, to the probable freeing of obstructed tubules by the handling and squeezing of the organ during the operation; and thirdly, to the relief of tension due to the enlargement of the capsule after an incision into it. Hence he inferred that multiple incisions of the capsule might be indicated in renal pain.

The capsule should be slashed in parallel lines rather than decapsulated, in accordance with this theory.

It is found advantageous also to operate on one kidney only. The patient thus incurs less danger and far less discomfort during convalescence. There is no small probability, in addition, of obtaining as much benefit from this procedure as from the double operation. If the case is not cured by this method, it is a simple matter to operate upon the second kidney later.

Where the urinary signs and constitutional depression outweigh the distinctly uremic general symptoms, the case may be regarded favorable to operation. As for segregation of urine, the ureteral catheter furnishes the only method that may be regarded as definite.

Every case of nephritis in a woman should be subjected to ureteral catheterization as soon as recognized, and in any unilateral case in which the normal state of health is being decidedly and progressively lowered the physician may conscientiously recommend the operation as affording a fairly definite prospect of relief to an otherwise incurable condition.

RETROVERSION OF THE UTERUS—AUTOPLASTIC SUSPENSION.

MARTIN (*American Journal of Obstetrics*, May, 1904) has adopted a method of operation for retroversion of the uterus which makes a simple, quick, safe, and efficient suspension with a minimum of risk of a fixation supervening.

The abdomen is opened in the median line, the lower end of the incision being about two inches above the pubes. The

patient is then placed in moderate Trendelenburg.

After freeing the uterus from adhesions, a strip of peritoneum one-third of an inch wide is severed with scissors from one side of the wound; the upper end of the strip is severed from its peritoneal attachment, thus leaving a ribbon of peritoneum the length of the peritoneal incision, attached at its lower end beneath the lower angle of the wound to the parietal peritoneum above the bladder.

The uterus is now brought forward; a flat Cleveland ligature carrier is passed from behind forward just back of the crest of the uterus beneath its peritoneal covering for a distance of half an inch, and as the ligature carrier emerges at the crest of the uterus it is made to grasp the end of the ribbon of peritoneum, and as it is withdrawn the strip of peritoneum is drawn through beneath the half-inch isthmus of peritoneum on the fundus of the uterus.

The upper free end of the ribbon of peritoneum is now grasped with the forceps, and the uterus is slid well down on it, until the fundus lies well forward beneath the lower angle of the wound. A supporting catgut suture is passed through the peritoneal coat of the uterus at a point back of that occupied by the nev. peritoneal ligament (far enough away from it to avoid constricting it), and the uterus is temporarily suspended by passing the two free ends through the peritoneum and deep fascia on either side of the wound and tying them.

The upper free end of the strip of peritoneum is secured by including it in the running catgut suture which closes the peritoneum. This reunites it to the peritoneum from which it was severed, and the balance of the wound is closed with layer sutures.

If this operation is carried out carefully, it makes an immediate suspension by the peritoneum. Everything is favorable for an immediate union. In the meantime the uterus is maintained in position provisionally, during the life of the suture material, by the catgut suture. In five cases a secondary laparotomy demonstrated that the peritoneal strip forms an ideal suspensory ligament. In several patients who became pregnant no unpleasant symptoms arose during gestation, delivery, or puerperium.

EPITHELIOMA.

The operative treatment, as contrasted with the *x*-ray treatment in rodent ulcer, appears to WARREN (*Boston Medical and Surgical Journal,* Jan. 21, 1904) to have not a little in its favor.

X-ray therapy has a favorable influence upon very superficial carcinoma, but the deeper-seated growths are not affected by it. It is hardly justifiable then to treat a cancer of the lip or any of its allied forms elsewhere on the body in their early stages with *x*-rays. Such cases should be treated by prompt extirpation, with a careful search with the knife for infected lymphatic glands at the points which the disease is most likely to invade.

In regard to rodent ulcer, then, it remains to consider the value of *x*-ray therapy in its different phases.

In its earliest stages the disease is usually seen as a small pimple or ulcer situated in the nose or near the lower eyelids. These are so easily and painlessly removed by the aid of subcutaneous injections of cocaine, with the knife, that it seems hardly necessary to consider the influence of the rays upon them. Such wounds are healed in a week's time, and the cure is, with extremely rare exceptions, permanent. The same may be said of growths ranging in size up to that of a quarter of a dollar, unless they happen to be so situated that their removal with subsequent suture of the wound would cause considerable deformity. This is the case near the inner angle of the eye, or near the alæ of the nose, or on the nose itself. Experience shows that the cicatrization following the absorption of the growth by the *x*-ray leaves a soft and pliable scar. If, however, the ulcer is growing rapidly and shows thickened base or edges the stage of increased malignancy is close at hand. When once the inner canthus of the eye has become involved the growth spreads with much greater rapidity into the orbit. Here is then a condition which only the most radical operation can hope to control, operations frequently involving extirpation of the eye and of considerable portions of bone. At the outer canthus there are also seen ulcers becoming adherent to the adjacent bone, here quite superficial. The *x*-ray therapeutist should therefore make himself thoroughly familiar with the more advanced and

malignant phases of rodent ulcer if he wishes to make an intelligent selection of cases for treatment. There are cases under this treatment which would be better treated by the knife. In such cases the dread of the knife should be overcome and the patient be prevented from yielding to his instinct to lean toward the more popular therapy. There are others, however, which show clearly the great advantage of the ray treatment. There are those cases in which the disease is superficial and spreading over a large surface, and those where ulcers are multiple and on prominent portions of the face, or closely grouped together so as to necessitate the extirpation of a large piece of skin. In private practice, where all such ailments are attended to in their early stages, the majority should be treated by excision, and the *x*-rays should be reserved for exceptional cases only.

The *x*-ray treatment is tedious and expensive, and a severe trial to the strength of nervous and elderly people, who must be prepared to go out in all weathers for a considerable length of time. Some portions of the diseased growth must be allowed to continue in its course from twelve to fifteen months before it yields to the ray. During such a long period of time it might pass from the benign to the malignant stage, and then be beyond the pale of surgery.

Warren enters a plea for more radical operations for cancer of the lip than are usually performed. Not only should the disease be removed by a most liberal V-shaped incision, but this primary lesion should be dissected away in a continuous mass with the cervical glands and tissue occupying the triangle nearest the seat of growth. The practice of incomplete "ambulatory" operations with the aid of cocaine anesthesia cannot be too strongly condemned.

SUBCUTANEOUS FEEDING IN SURGERY.

Friedrich's later experiences have fully confirmed his previous announcements in regard to the great value of subcutaneous feeding in certain severe gastrointestinal disturbances, in which feeding by the mouth, or rectum, and the formation of a fistula are contraindicated. His method, as quoted in the *Journal of the American Medical Association* of May 28, 1904, consists in the daily injection of a 3-, 4-, or 5-per-cent solution of 40 to 100 grammes of grape-sugar. He also uses a pure pepsin-peptone, free from albumoses (the chemically pure product being made according to the method devised by Professor Siegfried of the Leipsic Physiologic Institute). Twenty grammes of this combination injected subcutaneously are completely utilized by the organism. He gives it in a 7-per-cent solution with or without the grape-sugar. An admirable combination is .2 gramme table salt, 2 grammes grape-sugar, and 4 grammes pepsin-peptone to 100 grammes of water. With this subcutaneous nourishment he has been able to tide patients past the critical period of perforation of the stomach or bowel, or of severe peritonitis from any cause.

CALCULUS IN THE URETER—REMOVAL BY A NEW METHOD.

Though not aware of it at the time, GARCEAU (*Boston Medical and Surgical Journal,* April 21, 1904) performed his operation for removal of a calculus from a ureter in a manner similar to that of Doyen's, yet in such a way as to obtain advantages not secured so far by the latter procedure. The technique is simpler. Hemorrhage is under perfect control. The operation is rapid, perhaps the most valuable advantage of all.

In the case reported, that of a matron of thirty-four, there was no difficulty in detecting a very large stone situated fully 9 centimeters from the entrance of the ureter into the bladder. It could just be reached with the examining finger. The circumstances were such that immediate surgical interference was imperative.

Examination under ether led the operator to plan incising the anterior cul-de-sac, to push back the peritoneum between the bladder and the uterus as far as the broad ligament, then evert the broad ligament backward with the tip of the finger, catch the stone with the tip of the finger crooked at the last joint, force it down and toward the vaginal outlet, cut upon it with a very small incision, and finally squeeze it out. The operation was performed as planned without the least difficulty.

Immediately upon delivery the vaginal incision was closed with silver wire sutures, which took in the walls of the ureter. Some hemorrhage occurred in the anterior cul-de-sac, and as it was desired not to take any more time a few clamps were left on the vessels. A gauze drain was put in.

The whole operation took ten minutes, and the stone was delivered in five minutes. The convalescence was not remarkable, and there was no fistula. The ureter has remained pervious.

The stone was a very large one, weighing in the dry state 7 decigrammes, and it was 1 centimeter long and nearly 1 centimeter wide at the widest part. It consisted of phosphate of lime.

INTRACRANIAL SYPHILIS—DIAGNOSTIC SYNDROME, PROGNOSIS, AND TREATMENT.

It is beyond question, in the opinion of PRITCHARD (*Medical Record*, May 14, 1904) that the most prolific single cause of disease of the cerebrospinal tissues is syphilis. In his experience, covering a period of some sixteen years of special work, it has entered as a factor, singly or in a dominant contributory way, into the histories of more than forty per cent of all his organic cases, although he is not so sure of the figures as to its frequency in mental affections.

There are certain peculiarities of conduct, certain earmarks, which are individually suggestive, and in association, collectively, constitute a syndrome almost pathognomonic, and one that may be relied upon with confidence. Given a patient between the ages of twenty-five and forty-five, affected with any form of intracranial paralysis, which was preceded by headaches, of nocturnal onset or exacerbation, associated with vertigo and with insomnia, the insomnia occurring during the first half of the night, the paralysis developing during sleep, both headache and insomnia disappearing upon the onset of the paralysis, the cause is syphilis. The age limit specified should not be adhered to too literally, in that both younger and older patients may occasionally be included. The headaches vary widely in location and intensity, and only rarely possess any diagnostic significance in either of these two particulars. The striking and quite constant feature of a specific headache is its nocturnal periodicity and its persistence. Broadly speaking, the younger the patient the greater the tendency to insomnia; the older the patient, the more marked the morbid somnolence.

The foregoing syndrome applies to acquired cerebral syphilis, to a much less constant degree to spinal syphilis, and scarcely at all to hereditary syphilis. Its value, also, depends not upon any one but upon the association of all the symptomatic conditions enumerated.

Other presumably familiar signs are: An erratic, sometimes a bizarre, distribution in the paralysis; fugacious preliminary palsies or paresthesiæ coming and going for days or weeks before a final culmination; selective affinity for certain regions and tissues; ptosis or strabismus; localized tremors in the regions subsequently to be paralyzed; and finally, a general malaise with mental inertia, not explained by any condition of the kidney, liver, or other viscera.

Meningitis, gummatous tumors, many cases of myelitis and paralysis due to thromboses or endarteritis obliterans, offer a decidedly favorable prognosis, especially in contrast with these same conditions when due to other causes. On the other hand, locomotor ataxia, specific in origin in from 60 to 90 per cent, is never cured, and but rarely modified, except for the worse, by any form of specific treatment. Epilepsy caused by syphilis, if it is to be cured by mercury or iodides, must be recognized and treated promptly, for once the habit is well established the cause, no matter what it may be, becomes of minor importance, so far as cure of the epilepsy is concerned. Epileptics, syphilitic or not, are relatively intolerant of iodides. In general paralysis of the insane, no matter how clear the history of previous infection, nothing positive can be promised as to the final outcome. Pritchard has seen several examples of so-called pseudoparesis clear up under large doses of the iodide, with or without mercury, these cases not differing essentially in symptomatic details from others which steadily progressed from bad to worse under the same treatment, and with the same etiological history. Promptness in recognizing the underlying cause is a most important factor. No matter what

or where the lesion, if it prove destructive, the consequences are permanent. In a large proportion of the cases of intracranial syphilis, the lesion is an endarteritis with proliferative thickening of the intima and proportionate gradual reduction of the lumen of the vessel, an endarteritis obliterans. If the obstruction is not complete (and it rarely is at first) much can be done—indeed everything—in many cases by prompt, active treatment.

Two drugs only are of any positive constant curative service—potassium iodide and mercury. Mercury is sometimes of service, and in a few cases of more decided service than the iodide. Mercury is indicated, rather than the iodides, the nearer the nervous invasion is to the primary disease; the longer the interval between the chancre and the paralysis, the more positive the indication for and benefit from the iodides. Mercury is used by inunction, employing it almost as a matter of routine during the intervals or interruptions in the use of the iodide. In giving potassium iodide, there is no such thing as a fixed or arbitrary dosage. When indicated, give it not with iodism as a guide, but until either the disease yields, or until very large doses—seven, eight, or nine hundred grains daily—without any modification of symptoms, satisfies that its further employment is useless. Iodism should be a very rare obstacle to the successful treatment of nervous syphilitics. Always use the drug in the form of the saturated solution, for convenience and accuracy. Get a pure drug from a reputable chemist. Beginning with twenty drops (never less) after meals, the dose is increased three, five, or ten drops daily, according to the urgency or gravity of conditions. The vehicle is changed every third day, the first two days water, the next two milk, the next Vichy, then Apollinaris, then back and through the same cycle again and again, the amount of the vehicle being increased *pari passu* with the increase of the drug. Should iodism develop to an annoying or extreme degree, stop for two days and then start just where stopped, doubling the ratio of daily increase. The patient will be thirty or forty grains daily further along before iodism recurs, employing this method. The addition of essence of pepsin in two- or three-drachm doses after the iodide seems to be of decided service at times. Rennet mixture is but rarely tolerated for more than a few days. Iodism is much more apt to occur from the continued use of a fixed dose, although a moderate one, than when giving it by the progressive method. Following this method Pritchard has repeatedly given six hundred grains and more daily without any special inconvenience, and in one patient affected with meningomyelitis, a daily quantity of 1245 drops of the saturated solution was reached without untoward symptoms.

PLASTIC SURGERY DURING THE PUERPERIUM.

HIRST (*Journal of the American Medical Association,* March 5, 1904) considers it questionable if injuries of the pelvic floor are not of subordinate importance among the three varieties of traumatism to which the genital canal is subjected during labor. He directs particular attention to his experience and results in the primary and intermediate repair of the cervix and anterior vaginal wall, regions which have been strangely neglected, not only by surgeons in general, but by experts in charge of large maternities.

During the past year the cervix has been repaired in fifty-three puerperal patients. The result has been perfectly good in every case. All of these operations were performed after the fifth day, usually at the end of the first week. Previous experience had shown that an operation on the cervix before the fifth day was too often followed by inflammation of the endometrium and fever. At the end of a week this was not the case, hence if the cervix is involved the repair of the injuries of childbirth should be postponed for a week. Operation is performed under general anesthesia.

Routine examination of the anterior vaginal wall after labor, by pressing a forefinger upward in the sulci toward the pubic bone, frequently will demonstrate tears through the fascia and muscle of the urogenital trigonum. This is the first step in the pathologic process that ends in a cystocele.

The laceration is usually submucous, but whether it is or not, it is as easily and as effectually repaired as the analo-

gous injury in the anterior sulci. The anterior vaginal wall has been repaired in forty-two patients during the last year, in each case with perfect restoration of its muscular and ligamentous support.

These records show that all the injuries of childbirth can be repaired successfully during the puerperal convalescence.

NASAL SYPHILITIC TUMORS.

TOEPLITZ (*American Journal of the Medical Sciences,* May, 1904) writes that the tertiary manifestations of syphilis in the nose are often seen very early —a few months to one year after the first infection, but as a rule much later. The tertiary lesions of hereditary lues are the same as those of the acquired, and occur either soon after birth or during puberty.

The anatomical lesion is a gummatous infiltration of the mucous membrane, independent affection of cartilage, periosteum, and bone, and simple infiltration, with softening, ulceration, either from without inward or inversely. The favorite seat of the infiltration is the septum. The tumors are either extremely large gummata or so-called granulomata.

Granulomata obstruct the nose when large enough, and discharge fibrinous, smeary, and purulent secretions. They cause pain in the head, face, shoulder, and paralytic-like weakness in the arm. They are of variable size, and are implanted upon the mucous membrane with a broad or pedunculated base. Their favorite seat is the anterior lower portion of the septum, occasionally also the nasal floor. They are red, reddish-gray, not quite smooth, show frequent erosions, but rarely ulcerations. They are covered with fibrinous, purulent, firmly adherent exudations, in some cases with thin, fluid mucopurulent secretions. The tissue is boggy and brittle, but without tendency to decay, its main distinction from gumma.

In many of these cases examination apparently revealed a sarcoma, but the tumors disappeared under antisyphilitic treatment.

Multiple tumors sometimes develop under and along the lower turbinate which resemble a papillomatous growth, and recur as rapidly as they are removed, but which are cured with mercury and iodide of potassium.

The diagnosis of these tumors is difficult if the patients do not exhibit other syphilitic signs and the history does not furnish any support. Microscopic examination does not give any positive results as to the specific nature.

The new formations are true tumors, pure connective-tissue growths originating from the submucous connective tissue. The giant cells, which resemble the tuberculous giant cells, are proliferations of endothelia from the walls of small veins, and the leucocytes also take part in their production.

The fibrous connective-tissue stroma is the distinguishing feature between these tumors and the round-celled and spindle-celled sarcoma, in which the fundamental substance is sparse and more homogeneous or slightly granular.

The granulomata or syphilomata are not to be confounded with the frequently occurring nasal gummata, which are an inflammatory infiltration into the mucous membrane along its prominent surface, and which soon decay and ulcerate. The syphilomata, however, originate from a small, circumscribed place, the mucous membrane, develop to a considerable size, and do not exhibit any tendency to decay.

The clinical proofs are the history and other syphilitic lesions. Perforations of the nasal septum are not always specific.

The best criterion for the diagnosis is the success of antisyphilitic treatment, consisting of mercury and potassium iodide.

PELVIC URETEROTOMY.

With a view to operating on the pelvic ureter, WITHERSPOON (*New York Medical Journal and Philadelphia Medical Journal,* May 21, 1904) conceived the plan of combining the intraperitoneal examination and the extraperitoneal exposure of the ureter, so that both could be accomplished at the same time, and through the same incision in the abdominal wall.

An incision four inches long was made over the lower end of the rectus, beginning at a point over its insertion into the pubic bone and extending upward in a direction parallel with its fibers. The rectus was divided longitudinally by blunt

dissection through the middle of its belly. The fascia below the semilunar fold of Douglas with the peritoneum and its fatty layer were incised, and the entire length of the ureter and the kidney were palpated. A ureteral catheter introduced before the operation rendered palpation easy.

The lower ureter was exposed extraperitoneally in the following manner: The peritoneal opening was closed tightly, to shut off its cavity from the outer route. The bladder and its fatty covering situated in the lower portion of the wound were pushed upward and inward, and the peritoneum separated from the side of the abdominal wall as far as the iliopectineal line. The index-finger then entered the pelvis at the side of the bladder, pushing upward and inward that fold of peritoneum known as the lateral false ligaments of the bladder. After passing the finger well down toward the base of the bladder, the separation of the peritoneum from the pelvic wall was carried posteriorly as far as the vas deferens. The union between the peritoneum and the fascia is very loose in this space. Posterior to the vas it is much closer.

Where a ureteral catheter has been introduced or a stone is lodged in the lower ureter there will be no difficulty experienced in locating the ureter, but where these conditions do not exist, it becomes necessary to have some guide. If the vas deferens is followed about two inches onward from the point of crossing the obturator vessels, the ureter will be found just behind it. This point is from three-quarters of an inch to an inch from the point where the vas turns inward to the bladder. The vas deferens and ureter are both raised with the peritoneum when the dissection is made. The ureter, being located, is freed from the delicate fibers which bind it to the peritoneum and is brought clearly into view. Some three or four inches may thus be seen readily. The index-finger can follow the ureter to the brim of the pelvis, where it crosses the iliac vessels, but to see to this point would require a very extensive separation of the peritoneum from the pelvic brim. The space given by this operation is ample for any method of dealing with the ureter.

The advantages of this route are the following: (1) It is extraperitoneal and avoids the danger of peritoneal infection. (2) The opening is directly over the route of the ureter and allows a good view of that structure through a very small cut in the abdominal wall. (3) It allows of a thorough palpation, through the peritoneum, of both kidneys and ureters, and at the same time of an exposure of the ureter on the side of the incision for extraperitoneal operation upon its lower end. (4) The field of operation is bloodless and no forceps are in the way. (5) Drainage is usually necessary after opening the ureter, which may be carried through the lower end of the rectus and does not favor the development of hernia as a para-Poupart incision does. (6) The dissection is not difficult, and can be carried out by any reasonably prepared surgeon.

SYPHILITIC ULCER OF THE UMBILICUS IN THE NEW-BORN.

In several cases of hereditary syphilis in children in which the disease had remained more or less latent, HUTINAL (quoted in *Journal of Cutaneous Diseases,* June, 1904) has observed an early specific lesion of the umbilicus before the appearance of the characteristic coryza, papules, mucous plaques, fissures of the lips, etc.

In a new-born of from eight to twenty days, immediately after the falling of the cord the umbilicus swells, becomes prominent, with a bright-red zone about it; the redness becomes darker and extends to a diameter of from two to four centimeters, this redness standing out well against the paler color of the abdominal wall. The appearance is distinctly inflammatory and resembles an erysipelas, except that the redness does not spread, has not a sharply defined border, is apyretic, and does not affect the general condition of the baby.

There is no tendency to abscess formation. The mass is firm, indolent, and feels like a lardaceous infiltration which shades off gradually into the healthy tissue. A peritonitis caused by this lesion has never been observed.

In from twelve to fifteen days the process ceases to spread, the swelling goes down, the redness fades, but an ulceration remains—*i.e.,* a fistulous opening into which a probe will pass to quite a depth. This ulceration resists local treatment for

a long time, so that one is surprised if before this lesion has healed other manifestations of syphilis do not appear.

In hospitals these babies frequently die, and a gummatous ulceration of the navel is found locally and specific lesions in the bones, spleen, liver, kidneys, etc., to verify the diagnosis.

At first the ulcer of the umbilicus has nothing characteristic in its appearance. The redness which appears resembles the zone about a furuncle; next the skin becomes shiny and sometimes desquamates. Inflammation of the lymphatics and dilatation of the subcutaneous veins have never been noted.

The swelling is neither painful nor tender, feels firm to the touch, and does not pit on pressure. Often after the redness and swelling have disappeared an actual depression is left in the skin.

Non-specific infections of the umbilicus in the new-born are more common than the syphilitic lesion. When seen at the beginning the simple infections would never be mistaken for the gummatous ulceration in the typical case, but there are times when it is wise to wait for confirmation.

The presence of this gummatous ulcer cannot be considered of more value than the majority of other signs of inherited syphilis, but it does constitute a new sign and should be put alongside the other signs, its chief importance being due to its early appearance.

GALL-STONES—OPERATIVE RESULTS.

In a former report KEHR (*Münchener medicinische Wochenschrift,* April 5, 1904) analyzed his first four hundred cases of operation for cholelithiasis and found that the removal of the stones was incomplete in four per cent, hernia occurred in seven per cent, colic due to adhesions was observed in eleven per cent, and colic due to inflammation in six per cent.

Of his last five hundred cases, fifty have been operated upon, too recently to determine the final result. Of the remaining four hundred and fifty cases, seventy-two, or sixteen per cent, died during their stay in the hospital. In thirteen per cent the fatal result occurred in cases in which carcinoma, cholangitis, or some other complication was present, and in only three per cent was death due to the operation *per se.* Twenty-one patients have died since leaving the hospital. In the great majority of these death was due to carcinoma, only a few dying of intercurrent affections.

In seven cases the ultimate result is unknown. In five of the remaining three hundred and fifty cases attempts to remove the stones had to be abandoned on account of the poor general condition of the patient or the technical difficulties of the operation. In four cases the presence of a stone in the hepatic or common duct was not recognized during the operation. In three cases the stone passed spontaneously, and in the fourth a stone was removed from the papilla duodenalis at a second operation. A true recurrence of gall-stones has not been observed in any of the nine hundred cases.

A biliary fistula is present in one case, and a mucous fistula still persists in a second case in which the cystic duct was so deeply situated that the stone could not be removed from its lumen.

Hernia developed in eleven patients who resumed heavy labor soon after the operation, in which extensive drainage was employed for suppurative conditions. In none of the cases does the hernia give rise to sufficient disturbance to require a radical operation. Colic due to adhesions has been noted in twelve cases, and colic due to inflammation in five.

Of the three hundred and fifty cases two hundred and eleven have been entirely relieved of their symptoms, and have remained free from any secondary disturbances.

Reviews.

A TREATISE ON OBSTETRICS FOR STUDENTS AND PRACTITIONERS. By Edward P. Davis, A.M., M.D. Second Edition.
Philadelphia and New York: Lea Brothers & Co., 1904.

The author of this book is not only Professor of Obstetrics in the Jefferson Medical College, but is in addition in charge of the maternity hospital of that institution, and from this source, and a large private practice, daily accumulates a large amount of practical experience in

this special branch of medical practice. The present edition of his "Obstetrics" is considerably larger than the first edition, and deals exhaustively in text and in picture with the physiological and pathological course of pregnancy and parturition. We note with some interest that he separates the toxemia of pregnancy from eclampsia, considering this condition in the chapter devoted to disorders of the nervous system. It is evident, however, that he believes that the disorder of the nervous system is the culmination of a toxemia, and therefore he puts the consideration of these two subjects side by side; admitting that while a complete demonstration of the toxic character of eclampsia is lacking, clinical evidence is distinctly in its favor. For elimination to diminish the toxemia he gives full doses of calomel with bicarbonate of soda, if the patient can swallow, or in urgent cases two drops of croton oil in sweet oil. He also orders a hot pack, and if the patient's pulse is not weak and rapid, he advocates the hypodermic injection of 10 minims of the tincture of veratrum viride. This is a considerably smaller dose of this drug than is usually recommended by advocates of the veratrum viride plan of treatment. The convulsions, he thinks, should be controlled by chloroform, and oxygen should be given, a hot pack also being used to produce sweating. Hypodermoclysis is also of value in his opinion. The bladder should be catheterized, and the quantity and character of the urine noted. If the cervix is tightly closed he thinks that no good can come by forcibly dilating it. But if it is partly dilated, the physician may, on the one hand, rupture the membranes, and so diminish tension in the uterus, although this method endangers the life of the child. On the other hand, if he has assistance and is skilful, he may introduce a dilating bag for the purpose of hurrying the labor. We note with interest that he advises against the use of intra-uterine bougies to excite labor. If we mistake not, this is a different view from that held by him at a previous time.

Those who have heard Dr. Davis's lectures know he possesses the ability of expressing himself clearly and concisely, and with his pen he is as skilful as with his tongue.

APPLETON'S MEDICAL DICTIONARY. An Illustrated Dictionary of Medicine and Allied Subjects. Edited by Frank P. Foster, M.D.

About fifteen years ago Dr. Foster prepared, with the aid of collaborators, the most exhaustive medical dictionary, in four volumes, which has ever been published in the English language, and which must remain for many years to come as a classic in medical literature. The present volume is as large as an ordinary unabridged Worcester or Webster Dictionary, containing, as it does, nearly 2000 pages. In other words, it occupies a position between most of the moderate size medical dictionaries at present on the market and the large four-volume work to which we have already referred. In this volume particular attention is given to the derivation, accentuation, and definition of terms used throughout the entire field of medical science. We have looked over the volume carefully, and have sought for definitions of newer subjects with interest, and in each instance we have not been disappointed. A number of colored plates, as well as ordinary black-and-white illustrations, are employed to illustrate the text. The plate upon malarial fever is an excellent one, and is far better executed than most plates of this character; indeed, it is the best that we have seen since the publication of Thayer and Hewetson's plates some years ago.

Although the number of medical dictionaries on the market to-day is very great, there is always room for an A No. 1 book, and those that are already in existence will have to look to their laurels if they do not wish to be pushed aside by this very notable addition to medical lexicography.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS. With Special Reference to the Application of Remedial Measures to Disease. By Hobart Amory Hare, M.D., B.Sc. Tenth Edition. Price $4.00. Philadelphia and New York: Lea Brothers & Co., 1904.

On the fly-leaf of this volume the author's opinion of the method of employing drugs is expressed in the following three paragraphs:

"When called to guide a patient through an illness the physician should be constantly a watchman, and a therapeutist only when necessity arises.

"A good physician is one who, having

pure drugs, knows when to use them, how to use them, and, equally important, when not to use them.

"When a physician gives a drug and the patient improves, care should be taken not to ascribe all the good results to the remedy employed. Nature must be given credit for a large part of the improvement."

The author has the following words to say in regard to the Tenth Edition itself:

"In the preparation of the Tenth Edition of this work the author has made every endeavor to maintain its reputation as a Text-book of Practical Therapeutics, or, in other words, a guide to the student and practitioner by the bedside of his patient. Not infrequently, as a work passes through several editions, it becomes composed of old paragraphs interspersed with new ones, and no longer possesses the evidence of careful and complete revision which is so necessary for accuracy and easy reading. To avoid this possible fault, not only the entire contents of this edition have been revised, but the entire book reset in new type. Particular attention has been paid to Part IV, in which the treatment of diseases is discussed. The author therefore hopes that the Tenth Edition will prove as useful and popular as its predecessors."

THE CLINICAL STUDY OF BLOOD-PRESSURE. By Theodore C. Janeway, M.D.
New York: D. Appleton & Co, 1904.

Within the last few years a number of very interesting researches have been carried out with the various sphygmomanometers which have been invented by clinicians in this country and abroad, of which perhaps the most notable is the Riva-Rocci apparatus with its various American modifications. No one in this country, so far as we know, has done more careful and exhaustive work along these lines than Dr. Janeway, the author of this book, who has inherited from his distinguished father, Dr. E. G. Janeway, much of his talent in clinical observation. In the opinion of the writer the sphygmomanometer does not possess the value which has been attached to it by many of those who have contributed papers reporting its records; but there can be no doubt that it is a valuable aid in some lines of clinical research. In other words, its use cannot enable us to do without other methods of determining the patient's condition, but it can afford us valuable information in certain cases as to the patient's condition. The skilful physician may be able to judge by trained tactile sense of the arterial tension of his patient, yet he is unable to express the results of such an examination in his case-book or to another physician. The sphygmomanometer, however, provides him with a means by which he can provide himself with definite clinical records, and so accurately study the variations in the blood-pressure of his patient from time to time.

In the present volume, which is of value in many ways, and particularly because it presents a summary of the best that is known concerning sphygmomanometry, we find that the author devotes the first thirty-nine pages to the direct measurement of blood-pressure, and to the consideration of the blood-pressure in the normal animal. Following this there are chapters devoted to the indirect measurement of blood-pressure upon modern sphygmomanometers; upon blood-pressure in health and disease, with special chapters upon its variation in internal disorders, in nervous and mental diseases, in surgical and obstetrical conditions. Each chapter closes with an exhaustive bibliography.

To those who are interested in this new method of clinical investigation we can most cordially recommend Dr. Janeway's volume.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., assisted by H. R. M. Landis, M D. Volume III. September, 1904.

This issue of Progressive Medicine contains valuable articles upon Diseases of the Thorax and its Viscera, including the Heart, Lungs, and Blood-vessels, by William Ewart, of London. In this article particular attention is paid to the etiology and treatment of the various diseases which affect these portions of the body, and particular attention is devoted to tuberculosis.

The second article, on Dermatology and Syphilis, by William S. Gottheil, of New York, is a model of what such an article ought to be. It is concise and "full of meat" from end to end, quoting not

only the opinions of others, but giving in addition the definite conceptions of the author himself as to the etiology, pathology, and treatment of these important departments of medical study. Interesting sections of this article deal with syphilis in its influence upon the duration of life, upon the curability of syphilis and upon its treatment. It is interesting to note that Dr. Gottheil believes that the prognosis in general is very good, and he also thinks that "the hot-spring idea is a superstition which we should combat by every means in our power." We have long taught that the value of hot springs depended largely upon the fact that the patient devoted himself solely to his cure.

The third article of the volume, on diseases of the nervous system, by William G. Spiller, does not profess to be an exhaustive consideration of neuropathology. It deals with nervous diseases as they are of interest to the general practitioner.

The final article, by Dr. Norris, upon obstetrics, is an exceedingly practical one which will prove of interest to every general practitioner. It is filled with suggestions as to the measures which should be instituted for the relief of various untoward conditions during the course of pregnancy.

A Handbook of Physiology. Revised by Frederick C. Busch, B.S., M.D. Fifth American Edition.
New York: William Wood & Co., 1904.

In this volume we have presented to us the medical classic known to students of an earlier day as Kirke's Handbook of Physiology, with which, as an editor, the name of Dr. Morrant Baker for many years was closely connected. We are told in the preface that Dr. Busch has revised the text in accordance with well-established advances, and has condensed portions which he considered comparatively unimportant. The extraordinary advances which have been made in the physiology of the blood, and in muscle and nerve physiology, have required particular attention. The volume as it exists at the present time contains little that would be recognized by its original author, but its revision has been carefully carried out, and it doubtless will continue to be as much of a classic to the medical student as it has been in the past. Some of the newer illustrations do much toward rendering the text clear and easily understood.

The Suppression of Tuberculosis. By Prof. E. von Behring. Translated by Charles Bolduan, M.D.
New York: John Wiley & Sons, 1904.

This little book of less than one hundred pages contains observations concerning phthisiogenesis in man and animals and suggestions concerning the hygiene of cow stables and the production of milk for infant feeding, with special reference to tuberculosis. It has chapters devoted to the following subjects: The Suppression of Tuberculosis; Observations Concerning Phthisiogenesis in Man and Animals; Suggestions Concerning the Hygiene of Cow Stables and the Production of Milk for Infant-Feeding; Synopsis of the Method of Making Protective Inoculations of Cattle in Agricultural Practice; and Conditions Concerning the Distribution of the Protective Virus.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

The annual meeting of the British Medical Association at Oxford has been the chief event of the past few weeks in the English world of medicine. So many of the communications made at these meetings are published *in extenso* in one or other of the journals that it would serve no useful purpose if I were to attempt any general reproduction of them here. There were, however, several papers which dealt with practical questions of treatment, and if I may "exercise a selective action" and produce a sort of therapeutic "anthologia" from the Oxford medley, I shall, I think, give the gist of all that was most interesting. In the discussion on the treatment of chronic renal disease the views on diet were by no means unanimous, but it was noticeable that a majority of the speakers were in favor of allowing an ordinary diet

such as a healthy person would take, and in particular that the much-preached abstinence from meat was considered entirely unnecessary. As to alcoholic drinks, all were agreed that these are to be used only in very small quantities, if at all; but this is not to be taken to mean that water might be drunk *ad lib.*, for experience shows that excessive water-drinking is harmful in this disease. Naturally the recent method of treating nephritis by operation, Edebohls's method, or decapsulation of the kidney, came in for some criticism; its failures were emphasized, and a protest made against its indiscriminate use. Judging from some of the published accounts I fancy it is time that some such protest were made; the "furor operationis" seems to produce complete loss of memory of the many cases which do just as well, if not better, without operation. The administration of renal extract, which is one of the most recent ventures in the way of animal-extract therapeutics, was treated with scant ceremony; this extract was originally given with the idea that the kidney might have some function of internal secretion such as other organs are known to have, and that under stress of disease this function might be in abeyance, and consequently the artificial supply of an extract which might contain or be a substitute for the secretion would at least improve the general condition of the patient. Unfortunately for the theory the premises on which all this is based, the internal secretion of the kidney, according to Professor Rose Bradford, is entirely unproven, and unfortunately for the practice, the administration of renal extract is probably valueless. There was little novelty in the recommendations as to drugs. Time was when mercury was a forbidden drug in the treatment of nephritis, now it is advocated by Sir William Broadbent as the most valuable of aperients in chronic nephritis, chiefly because it seems to be specially effectual in reducing arterial tension; for the reduction of pulse tension the administration of nitrites and iodides was also specially mentioned.

The part played by oral sepsis in the production of disease both general and local has been emphasized much in recent years, and several speakers at the Oxford meeting, viewing the matter from different standpoints, advocated more care for the hygiene of the mouth. One dentist considers that the nation's welfare is threatened by the large prevalence of dental caries and oral sepsis, and advocates state provision for the inspection and care of the mouth, especially amongst children. No doubt a statesman with the toothache would be at a disadvantage, but one could not help being reminded of the cobbler who, after each department in turn had suggested its particular safeguard for the city which was besieged, advised that the walls should be hung with a covering consisting of new boots. Mr. Godlee drew attention to the possible infection of patients by the surgeon whose own mouth happens to be in a septic condition, and, no doubt on the principle that charity begins at home, recommended the surgeon to look to his own mouth before seeing to his patient. He referred also to oral sepsis in domestic pets, and deprecated the kissing of dogs as dangerous for this reason. He held very strongly that in all operations on the mouth, and indeed in operations on any part of the alimentary tract, it is imperative to render the mouth as aseptic as possible before surgical procedure. One remark he made which touches a very important and perhaps debatable point in reference to removal of carious teeth from children: tubercular glands in the neck, he said, are often related to decayed teeth, and therefore all such teeth should be removed. Probable as such a source of infection may seem, it is very difficult to prove it; and if I may venture to add a qualifying remark, I would say that even in the case of patients who are known to be tuberculous there is room for considerable discretion in advising removal of carious teeth. As another speaker said, the child who cannot masticate his food properly is in a poor plight for maintaining nutrition when he is attacked by disease, and commencing decay may be effectually combated by "stopping." Surely such treatment when possible is far better than removal.

A discussion on the treatment of tuberculous pleural effusion and of pneumothorax had the special interest that it was opened by Professor Osler, whose name is always a guarantee not only for a crowded attendance, but also for informa-

tion of weight and worth. He referred to the value of bacteriological examination of the sputum in cases of pleural effusion even where there are no evidences of pulmonary tuberculosis; the tubercular origin of the effusion may be confirmed in this way where it would otherwise be quite uncertain. In 30 out of 195 cases in which there was neither history nor sign of lung affection, the pleural effusion was shown to be tubercular by finding the tubercle bacillus in the sputum. He discussed the very practical problem as to early aspiration of tuberculous pleural effusions; it has been taught—and indeed still is taught by some—that so long as the effusion is not causing distress or danger by its mechanical effects there is no need to aspirate. Professor Osler, on the contrary, is in favor of early and, if necessary, repeated aspiration; he quoted observations by Dr. Delafield showing that many cases were cured of their effusion within a week by simple aspiration. He mentioned the various drugs such as iodides and duretics which had been employed in the treatment of pleural effusion, but said that in his experience they had not seemed to have much effect. He emphasized the value—too often forgotten, I think—of physical exercises, specially adapted for such cases, in expanding the lung after it has been compressed by pleural effusion. Dr. Samuel West, considering the treatment of pneumothorax, said that in those cases where only air is present in the pleura it is best to do nothing; the air is absorbed, and such cases often recover; but if fluid also is present the treatment depends on the nature of the fluid. Air with serum hardly makes the condition different from that of serum alone, for the air is quickly absorbed, and the case can then be treated as one of serous effusion; but if pus is present the side should be opened and the pleural cavity washed out. From this last advice Dr. Theodore Acland dissented; he admitted that there are a few urgent cases in which immediate operation is necessary, but more often, he thought, no surgical interference is required.

The treatment of diabetes is so often a matter of doubt that any useful suggestion is welcome, and a paper read by Drs. Beddard and Spriggs is worthy of notice. It is now generally recognized that the sudden stopping of all carbohydrates from the diet in diabetes may actually do harm rather than good; vomiting, a feeling of weakness with rapid loss of weight, and a smell of acetone in the breath, may all result from such treatment. When such symptoms occur the administration of large doses of sodium bicarbonate generally relieves the condition, although the amount of sugar in the urine may remain practically unaltered. The authors advise that whenever carbohydrate is stopped sodium bicarbonate should be given to the diabetic in sufficient doses to make the urine neutral.

I had hoped to say something in this letter of other congresses which have been held during the past few weeks, but must hold these over until next month. I cannot, however, close this letter without some reference to the heavy losses which our profession in this country has sustained recently from the deaths of distinguished medical men. It is but a few days since Dr. Gilbart Smith, physician to the London Hospital, was enjoying a well earned holiday in the country, and was suddenly seized with cardiac syncope whilst cycling and died almost immediately. Within the same week passed away Sir William Mitchell Banks, surgeon to the Liverpool Royal Infirmary, and Sir Frederic Bateman, consulting physician to the Norfolk and Norwich Hospital. But if death has cut off some before their time, it spared one of an older generation to reach a goodly age. Mr. John Birkett, consulting surgeon to Guy's Hospital, has only recently died at the age of ninety years; and if any doubt that a hardworking physician may "live long and see good days," he may be interested to hear that at the last comitia of the Royal College of Physicians thanks were received from Sir Henry Pitman, consulting physician to St. George's Hospital, for congratulations on his ninety-sixth birthday.

I reopen this letter to add a piece of news which has come as a pleasing surprise to many of the profession here. It is announced in the daily papers that the King has approved the appointment of Dr. William Osler, of Baltimore, to the Regius Professorship of Medicine at Oxford. If any evidence were needed of the gratification which this appointment will give in England it might be found in the

ovation which greeted Dr. Osler when he was presented at the Oxford meeting of the British Medical Association for an honorary degree. But no such testimony is necessary; congratulations are due to Oxford University. Long may its Medical School flourish under its distinguished professor!

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

Dr. Louis Martin recently read a report at the Medical Society of the Hospitals on 443 cases of diphtheria. By examining these cases according to the age of the patients, he found there was a mortality of 29 per cent during infancy, of 7.9 per cent with children, and only 3.45 per cent with adults. The patients of the first category generally died from croup, while the throat affection was the cause of death with the others. Almost all the cases of croup were injected too late. The diagnosis is often difficult, the physician at times considering the disease to be a simple case of stridulous laryngitis. The cases where death was due to the throat trouble were as follows: Seven patients died because there had been no treatment, or the latter was begun too late. Seven died from infectious complications, and thirteen from diphtheritic intoxication. It should be remembered that sometimes diphtheria appears suddenly, being characterized by fever, vomiting, and redness of the throat. This form is generally seen during the course of an epidemic and requires energetic treatment. There are also certain forms of diphtheria which resemble tonsillitis and quinsy or sore throat, and in such cases the diagnosis may be difficult. The safest rule is to always inject the serum when there is any doubt.

Peroxide of magnesium has been tried during the last few months in the service of Dr. Albert Robin, and at a meeting of the Society of Therapeutics Dr. Bertherand and Dr. Gaultier described the results they had obtained in the treatment of certain forms of acid diarrhea seen in adults. The latter are noticed, according to Dr. Albert Robin, in gastric hypersthenia which is associated with secondary fermentations. As the peroxide is transformed in the stomach into chloride of magnesium and oxygenated water, the latter being transformed into oxygen and water, to prevent this it is found necessary to administer the drug in keratinized pills. Peroxide of magnesium can, however, have no effect unless the contents of the intestine are acid, and this is seen when the gastric hyperacidity is not neutralized by the various secretions of the intestine.

The *Presse Médicale* publishes the following prescriptions of Dr. Lermoyez, the well known throat specialist, which are to be used in the treatment of coryza:

(1) Pure carbolic acid,
Ammonia, āā 5 grammes;
Alcohol at 90°, 10 grammes;
Distilled water, 15 grammes.

F. s. a. Every hour pour 10 drops of this mixture on some blotting-paper and breathe in the vapors produced.

Or,

(2) Salol, 5 grammes;
Boric acid, 2 grammes;
Menthol, 0.20 centigramme;
Chlorhyd. of cocaine, 0.25 centigramme.

M. To be used as snuff every hour.

At a meeting of the Society of Surgery, held last June, the question of the best treatment for vaginal imperforation was discussed. Dr. Legueu presented an observation sent by Dr. Fournier, of Amiens, of a woman twenty-six years old, who had suffered for fourteen years from abdominal pains coming on periodically, and who had never menstruated. Dr. Fournier found that the vagina was imperforate, and that the uterus, which was small, was connected with the vagina by a small fibrous band. He tried to connect the vagina with the uterus, but found this so difficult and so risky a performance that he decided to perform a laparotomy and remove the uterus and adnexæ, which were quite atrophied. Dr. Legueu remarked that it was always well in such cases of malformation to perform laparotomy, as it is the only means of recognizing clearly the condition of the internal generative organs, and he cited a similar case in which he operated in this manner. Drs. Hartmann and Tuffier also remarked that they always followed the same rule. In two cases seen by the latter he was able to establish a vagina by employing the skin taken from the thigh

and the arm of the patients. Since the operation the patients have their periods regularly and without pain, though coitus is always difficult, if not impossible.

Dr. Mahar, a former house surgeon of Walther, Broca, and Routier, who are all surgeons well known for their work in appendicitis, has recently published a thesis on the treatment of acute appendicitis, in which he reviews the results obtained in 450 cases operated from the second to the forty-eighth hour of the attack, and 2000 cases operated at different periods of the attack. According to Mahar there are two periods during which an operation is followed with the best results: A first period extending as far as the thirty-sixth hour, or at the most the forty-eighth hour, after the beginning of the attack; or after the ninth day, which is either the period of formation of an abscess or the period when the operation can be performed *à froid*. The intermediate period is certainly dangerous, and specially the fifth and sixth days. It is therefore only when the symptoms show that there is urgency that one should operate. When the patient has been treated rationally from the beginning of the attack, a close examination shows whether it is best or not to operate.

1. The local and general symptoms are decreasing in importance; the leucocytosis is not over 10,000. There is a limited tumor. In such cases no operation should be performed.

2. There is a well limited indurated region, but the pulse is rapid, the temperature high, the leucocytosis well marked (12,000 to 15,000); spontaneous pain, muscular contracture, absence of flatus. The inflammation is still localized, but if the symptoms do not improve within twenty-four to thirty-six hours an operation must be performed. If after a period of relative calm the symptoms increase in intensity, it is well to operate.

3. If at any time any of the following symptoms, such as temperature above 40°, without noticeable remission, pulse over 120, small, hard, or soft, irregular or unstable, lack of correlation between the pulse and the temperature, leucocytosis over 25,000, repeated vomiting, rapid change in the facial expression, pain more or less generalized, dryness of the tongue, abundant diarrhea, suppression of diuresis, notwithstanding injections of serum, or signs of complications appear, one should operate immediately. According to Mahar there are twice as many deaths when the operation is done systematically after the second day as when it is done at the ideal moment. This is shown by the statistics of Dr. Sonnenburg, who tried both methods.

At a meeting of the Medical Society of the Hospitals of Lyons a most curious case of hydrophobia was described by Leclerc. The patient, a young woman twenty-three years old, entered the hospital for spasms of the throat, accompanied by partial paresis of the lower limbs. Shortly afterward the classical symptoms of rabies appeared, and the patient died within forty-eight hours. It seems that she had had her hands licked by a pet dog some three months before, the latter having been bitten by a vagrant dog. As this took place in winter, it is possible that her hands were chapped at the time, and the virus penetrated by the fissures thus formed. This would show that it is well to inject all persons who have been in direct contact with dogs suffering from hydrophobia.

The annual excursion to French watering-places undertaken by a group of physicians under the direction of Professor Landouzy and Dr. Carran de la Carriere will this year take place in the central part of France. The excursion will last twelve days, and such places as La Bourboule, Néris, Mont-Dore-Royat, Chatel-Guyon, Vichy, Bourbon-Lancy and Bourbon-Larchambault, Pougues-les-Eaux, will be visited. This is the beginning of a new series, all the important watering-places of France being visited in the space of five years.

At a meeting of the Society of Biology Dr. Vincent described the experiments he had carried out in seeking to determine the influence of chloride of sodium in certain infections. Two guinea-pigs were injected with the bacillus of Nicolaier, and one of them received a hypertonic solution of chloride of sodium, two cubic centimeters. The latter died, whereas the other remained perfectly well. In other animals the typhoid infection has been favored in a most marked manner by injecting three to five cubic centimeters of

a 1-in-10 solution of chloride of sodium. What is most remarkable is to find that in some exceptional cases injections of 5 to 10 cubic centimeters of the normal salt solution may cause the appearance of lockjaw in animals injected with the bacillus of this disease. The influence of the hypertonic solution would be due to an alteration of the tissues.

Dr. Carnot has also been carrying out experiments of like nature in connection with the pneumococcus, and he considers that large doses of chloride of sodium have a favorable influence on the microbe and cause its diffusion.

Dr. Ricard has operated upon over one hundred cases of ulceration of the stomach, and he has recently expressed his views on this subject at the Society of Surgery. No ulcer of the stomach should be operated on while there is intense hemorrhage, as such an intervention is both useless and dangerous—useless, as the vessel which is bleeding is rarely found; dangerous on account of the danger of septicemia, due to the manipulations that are carried out. No ulceration should be operated on its own account, but only when there is stenosis or repeated hemorrhage. A few years ago Dr. Ricard used to remove the ulcer, but he has given this up, and contents himself with performing gastroenterostomy.

Dr. de Lavarenne, the editor of the *Presse Médicale,* practices during the summer at Luchon, an important summer resort in the Pyrenees well known for its sulphur waters, and he has recently published in his paper an article on the prevention of deafness by the injection into the middle ear of sulphur vapors. This treatment is to be employed in cases of catarrh and suppuration of the middle ear and Eustachian tube of chronic nature, more generally caused by influenza. The technique of the treatment consists essentially in collecting the sulphur vapors in a rubber bag, where they are under pressure at a temperature of about 34° C., and from this receptacle injecting them by means of an Itard sound into the middle ear. This is done for only a few minutes —two minutes for each ear. An otoscope is used to control the action on the tympanum. One injection a day is all that de Lavarenne recommends, and the treatment is continued thirty days, with a day or two of rest every week or ten days. The throat is also treated at the same time by means of gargles and inhalations of sulphur vapors (humage). The results would seem to be quite remarkable, several cases of deafness being cured, or at least very much improved. During 1903 Dr. de Lavarenne had over one hundred patients for this treatment alone.

At a recent meeting of the Academy of Medicine Drs. Doumer and Lemoine reported twenty cases of tumor of the stomach which they had treated by the Roentgen rays. Out of this number three were completely cured, a fourth is improving rapidly, and a fifth, who had been cured, has had a relapse, which unfortunately is not being treated by radiotherapy. One patient has remained in perfect condition for over a year; she has grown stouter, and all the morbid symptoms have disappeared. The tumor, which was as large as a hen's egg, disappeared after seven applications.

Dr. Chaput, surgeon of the Boucicaut Hospital, has reported to the Society of Surgery seven cases of appendicitis in which the abscess was pelvic, and where he made the incision four times through the rectum and three times through the vagina. This manner of operating by the rectum has been recommended in France by Jaboulay, and does not require general anesthesia. The results have been uniformly favorable in forty-three cases, there being no mortality.

The budget of the Assistance Publique in Paris was published two months ago in the *Officiel,* the government paper. The expenses as well as the receipts come up to the large total of sixty-three millions of francs.

Dr. Beclerè, physician of the St. Antoine Hospital, who has done more for radioscopy and radiography than perhaps any other man in France, presented last June to the Society of Medicine of the Hospitals a man who had been suffering from a sarcoma of the floor of the orbit. Two operations had not prevented the tumor from increasing in size. The Roentgen rays were then tried, and the patient seems to be cured at present. A few days after Dr. Bisserie reported at the Academy of Medicine two cases of cancer of the tongue which were cured by the *x*-rays.

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Therapeutic Gazette

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Original Communications.

BLOOD CHANGES PRODUCED BY ETHER ANESTHESIA IN BOTH MAN AND LOWER ANIMALS.

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The effects produced upon the blood by the inhalation of ether as an anesthetic are of special importance, since they have a direct bearing upon both surgery and general medicine. The results of the investigations into this subject have served, in a measure at least, as a guide to the selection of an appropriate anesthetic—*i.e.*, whether ether, chloroform, or nitrous oxide should be used in given cases. The effects of the usual anesthetics upon the kidneys, heart, and lungs have received much attention, but records appear to be few wherein the influence which they exert upon the circulating blood is presented. In our series of investigations we have selected normal human subjects, and persons upon whom slight operations were performed, and have also employed rabbits, noting the changes produced in the blood in all cases as a result of ether anesthesia.

In a previous article one of us (Anders[1]) reported a series of experi-

[1] "Jaundice, with reports of interesting illustrative cases—a contribution to the toxic forms of this condition." *American Journal of the Medical Sciences*, April, 1903.

ments made upon two healthy female rabbits and a healthy human subject, without the usual previous preparation for the anesthetic.

The results of those earlier experiments showed clearly that "the fall in the hemoglobin in primary anesthesia reaches its lowest level about twenty-four hours after the termination of the anesthetic state; also that one-half of this fall takes place during the first hour after anesthesia, the other one-half during the succeeding twenty-three hours. The blood regeneration goes on quite rapidly upon the survival of the anesthetic condition. The hemoglobin, however, is restored more slowly than the erythrocytes; hence the cells are inadequately supplied for the time being with hemoglobin. At the end of twenty-four hours the color index begins to rise rapidly, and it reaches the normal level after the lapse of approximately seventy-two hours in man. A few myelocytes, however, may still be present at this time."[2]

The human subjects employed were not purged before the administration of ether, and therefore any concentration of the blood (increase in the number of red cells) that was observed must have depended directly upon the anesthetic. Again, the question of the interfering influence of associated disease is largely eliminated from our experiments; and this, as well as the purging, appear, to our view, to be the common sources of fallacy in certain previous investigations; the latter condition (purging) increasing the number of erythrocytes, while the former (disease) was commonly associated with leucocytosis. It was previously pointed out by one of us (Anders) that the polycythemia resulting from ether anesthesia does not depend solely upon the preparatory treatment, including purgation, since this was purposely omitted in some of the cases belonging to the former series. The decidedly increased blood production or hemogenesis immediately following the administration of an anesthetic would appear to be a factor in bringing about the polycythemia according to our previous experiments. In other words, as shown also by Da Costa and Kalteyer,[3] invariably etherization produces increased hemolysis, following which there is rapid regeneration of cells, with an increase in the number of red corpuscles.

These observers in their admirable monograph, setting forth the results of a careful hematologic study of fifty cases, recommend that the hemoglobin should not register below 50 per cent in cases in which prolonged anesthesia, or major operations, are necessary. These authors also state that in one instance they administered ether when the percentage of hemoglobin was only 24; but they strongly emphasize the fact that such procedure should not be ventured upon except by the imperative necessity of a vital emergency. In three cases dying under collapse during anesthesia, Mikulicz found only 15 per cent of hemoglobin present in the blood.

T. L. Chadbourne,[4] in the study of twenty-one cases, found that there was an increase in the number of leucocytes per cubic millimeter following anesthesia. In his series of cases counts were made immediately after ether had been continued for a period of 16 2-3 minutes. The average increase in the number of leucocytes was found to be 37.3 per cent (the lowest 6 per cent, the highest 73 per cent). Chadbourne made differential leucocyte counts in five of his cases, and found that this increase affected both the polymorphonuclear cells and the lymphocytes to an equal degree.

DIFFERENTIAL COUNTS.

No.	Count. Before.	Count. After.	Increase per cent.	Time minutes.	Differential leucocyte count. Before.	Differential leucocyte count. After.	Number leucocytes counted. Before.	Number leucocytes counted. After.
9	21,290	27,220	23	25	Poly. 83.8% Mono. 14.0% Eosin. 0.2%	82.4% 17.6%	500	500
13	7,600	13,150	72	18	Poly. 71.1% Mono. 28.4% Eosin. 0.5%	69.4% 30.5% 0.1%	1,000	1,000
14	12,950	20,690	21	12	Poly. 69.8% Mono. 23.2% Eosin. 0.2%	69.8% 29.8% 0.4%	500	500
15	12,350	21,360	73	18	Poly. 82.8% Mono. 16.0% Eosin. 1.2%	77.6% 21.6% 0.8%	500	1,000
18	14,000	17,000	21	15	Poly. 83.2% Mono. 16.8% Eosin.	85.8% 13.8% 0.4%	1,000	500

[2] *Loc. cit.*

[3] *American Medicine*, March, 1901.

[4] *Philadelphia Medical Journal*, Feb. 18, 1899, p. 390.

All of these patients were victims of disease, and the majority of them showed over 10,000 leucocytes per cubic millimeter before anesthesia. It was also observed that the greater the preceding leucocytosis the more marked the increase resulting from the administration of the anesthetic. Operation, however, appeared to cause a slight reduction in the number of leucocytes in some instances at least.

Chadbourne in all his cases endeavored to eliminate the immediate result of operation, but it is to be remembered that he was dealing in a great measure with pathological blood. From a review by us of the literature, all authors agree that pathological blood suffers far greater destruction as the result of ether anesthesia than does normal blood.

A. von Lerber[5] has studied one hundred and one cases, making the counts both before and after ether anesthesia, and found the leucocytes to be increased in ninety-six instances. The remaining five cases should not be included, since a high-grade leucocytosis existed before the anesthetic was administered. In thirty-five instances the number of leucocytes was doubled, and in twenty-three trebled, as compared with the number found before the administration of ether. In von Lerber's series, however, there was no definite time at which the counts were made either before or after the anesthetic; neither was there any attempt to exclude the results which the operation possibly exercised upon the blood. In certain cases a blood examination was made twenty-four to thirty-eight hours before the administration of the ether.

In 1895 J. Chalmers Da Costa[6] made an extensive investigation of the action of ether upon the blood, and in concluding his valuable paper on the subject offers the following summary: "Etherization produces a marked diminution in the hemoglobin in the blood. The red corpuscles and the hemoglobin are especially affected in blood previously diseased. The white corpuscles show irregular changes which are not characteristic."

Hamilton Fish[7] has considered at length the blood changes that are known to follow the administration of ether with operation. Fish agrees that ether as an anesthetic causes a reduction in the hemoglobin, and also changes in the red cells; he further advocates the view that an anesthetic extracts oxygen from the oxyhemoglobin and combines with the latter. It is claimed that oxygen is extracted from the corpuscles, and should the hemoglobin register below 50 per cent, the corpuscles cannot afford the loss. It was found that in persons residing at an altitude of one mile the hemoglobin was reduced from 12 to 15 per cent during the first hour of anesthesia.

Fish makes mention of the fact that leucocytosis is produced by anesthesia, and that the increase in the number of leucocytes affects principally the polymorphonuclear elements. Mikulicz goes so far as to state that a general anesthetic, not specifying ether particularly, should not be administered where the hemoglobin registers below 30 per cent.

Oliver[8] reports a series of observations made upon animals with a view to determining whether or not normal red corpuscles are changed by ether anesthesia. From Oliver's experiments upon rabbits (each animal being kept under the influence of an anesthetic (ether) for one hour), he found an average blood fall of 1.1 before anesthesia and .98 after anesthesia. It was further found that during anesthesia the corpuscles appeared practically as normal. From the results of his experiments Oliver concludes that the administration of ether as an anesthetic does not cause injurious effects upon the healthy blood-corpuscles.

It is further admitted in Oliver's paper that ether may produce destructive changes in the previously diseased red blood cells. This observer advances the theory that examinations of the blood made before, during, and after the operations are not reliable, since certain hematological changes are the result of the operation.

The view that ether should not be administered as an anesthetic in cases in which the percentage of hemoglobin shows decided reduction is by no means a new one; but, on the contrary, refer-

[5] Quang: Dissert. (Berne), 1896.
[6] *Medical News*, March 2, 1895.
[7] *Annals of Surgery*, July, 1899.
[8] *Lancet*, June 27, 1896.

ence to the subject is made in nearly every article furnished by the literature. The percentage of hemoglobin regarded as necessary by the various authors in order to render ether anesthesia safe ranges from 30 to 50.

ANIMAL EXPERIMENTS.

Experiment No. 1 (B. L. 37).—Gray rabbit, female, apparently in perfect health; weight 2 K., 130 grms.; given ether twenty minutes. A small piece of gauze was used to form a cone, which was saturated with ether, of which 6 drachms was employed. The animal's blood was counted ten minutes before ether was begun, and at various intervals after the administration of the anesthetic until the animal's blood had returned to the normal.

Ten minutes before ether:

1. Red blood cells 4,462,000; leucocytes 16,000; hemoglobin 60 per cent; no crenation; the leucocytes stained pale with hematoxylin.

Twenty minutes after ether:

2. Red blood cells 5,750,000; leucocytes 24,000; hemoglobin 50 per cent; there were many basophilic cells; also normoblasts; poikilocytes few, and a few highly stained microcytes.

DIFFERENTIAL COUNT TWENTY MINUTES AFTER ETHER.

Polynuclear	44.5	per cent.
Mononuclear	2.0	" "
Lymphocytes (large)	3.1	" "
Lymphocytes (small)	38.3	" "
Transitional	0.8	" "
Eosinophilia	9.8	" "
Leucocytic shadows	1.5	" "

Forty-five minutes after the ether was begun:

3. The red cells were 3,567,000; leucocytes 24,000; hemoglobin 52 per cent. Many red cells stained heavily, and many others were distorted, stained faintly, and showed indistinct margins. There was an increase in the large lymphocytes and basophiles. Polymorphonuclear leucocytes and small lymphocytes showed a less marked increase.

Twenty-three hours after ether (weight 2 K., 10 grms.; loss 120 grms.):

4. Hemoglobin 30 per cent (loss 22 per cent); reds 4,000,000; whites 8000. Many red cells were found almost devoid of hemoglobin, appearing as nearly colorless disks whose margins were slightly stained. These cells were distorted at times, and were always swollen and did not display their normal central concavity. Other of the red cells were shrunken to appear as deeply stained spheres (microcytes). The general picture of the blood was that of a surface studded with overstained microcytes and understained macrocytes, and many poikilocytes. The normal sized red cells all displayed a rather large, pale central spot. Occasionally red cells showing punctate areas of basic degeneration were seen. Few nucleated red cells (normoblasts) were present. Leucocytes showed nothing abnormal, although the lymphocytes were somewhat increased.

Forty-five hours after ether:

5. Red cells 4,500,00; leucocytes 6000; hemoglobin 46 per cent. Changes practically those noted twenty-three hours after ether.

Seventy-two hours after ether:

6. Red blood cells 4,980,000; leucocytes 10,660; hemoglobin 47 per cent. Polymorphonuclear cells predominant. Red cells well formed, stained readily, but were pale.

One hundred and four hours after ether:

7. Stained specimens appear as normal. Red cells 4,330,000; leucocytes 10,000; hemoglobin 51 per cent. It will be seen that the blood of this animal did not remain normal, though the animal gave no other evidence of being ill.

One hundred and eighteen hours after ether:

8. Red cells 3,500,000; leucocytes 21,600; hemoglobin 40 per cent. All the red cells were pale, and many of them showed a special affinity for both the acid and basic stain (polychromatophilia). Other evidences of cell degeneration (as distortion and crenation) were also present.

The leucocytes did not return to normal after anesthesia, yet their relative proportions were maintained (as shown by the differential count of 600 leucocytes).

Experiment No. 2 (L. B. 41).—On April 15 gave black female rabbit ether; weight 3 lbs. 3 ozs.; 15 Cc. of the anesthetic was given.

Before ether:

1. Red blood cells 3,968,700; leucocytes 4200; hemoglobin 65 per cent.

Twenty-five minutes after ether:

2. There was no appreciable loss in

weight. Red blood cells 4,375,000; leucocytes 6500; hemoglobin 55 per cent. There was present decided poikilocytosis. Microcytes and macrocytes numerous. Many of the red cells appeared as pale swollen disks which were poor in hemoglobin. Other of the red cells stained unevenly, but true punctate basic degeneration was not present.

One hour after ether:

3. Weight 3 lbs. The red blood cells numbered 3,280,000; leucocytes 8500; hemoglobin 48 per cent. Stained blood as found at twenty-five minutes after ether, except that the polynuclear leucocytes displayed many coarse brownish granules. Nucleated red cells were common.

Twenty-seven hours after ether:

4. The red cells numbered 4,690,000; leucocytes 6200; hemoglobin 43 per cent. All red cells pale; nucleated red cells (normoblasts) common.

Fifty-eight hours after ether:

5. The red cells numbered 4,810,000; leucocytes 6800; hemoglobin 64 per cent. The stained blood was found to be practically normal.

SECOND ANESTHESIA (L. B. 41) MAY 4, 11 A.M.

6. Seventeen days after the blood had returned to normal the red blood cells numbered 3,016,000; leucocytes 8000; hemoglobin 50 per cent.

The reduction of 14 per cent in the hemoglobin content, the moderate lowering of the number of red cells and slight increase in the leucocytes, and gradual loss in weight, are features to be observed in nearly all rabbits after they have been detained in the laboratory for even a short period of time. The impoverishment of the hemic tissue is probably the result of immediate surroundings, captivity, etc., and must needs be taken into consideration when attempting to draw definite deductions from animal experimentation.

After being under ether for one hour (May 5):

7. The animal was in good condition; one ounce of ether had been given. The red blood cells numbered 5,120,000; leucocytes 9200; hemoglobin 49 per cent. At first glance the effects of ether upon the blood appear to be confusing in this experiment, and demand that we call special attention to one of the common sources of error in hematological research. The red cells have increased from 3,016,000 per cubic millimeter to 5,120,000 (an increase of 2,104,000). This increase in the red cells is directly the result of cyanosis, and when we consider the number of red cells in each cubic millimeter of undiluted blood and the percentage of hemoglobin correlatively, it is apparent that each individual red blood cell is now carrying but little more than one-half the hemoglobin it did before etherization. The white cells are also reduced in proportion to the number of red cells now present.

After being under ether for 100 minutes:

8. One and one-quarter ounces of ether had been given (now discontinued). The red cells numbered 4,440,000; leucocytes 13,600; hemoglobin 43 per cent. Leucocytes appeared to be about normal; red blood cells were much distorted, and showed considerable variation in staining properties, many staining pale, while others were overstained and deformed, but there was less variation in the size of the cells than was displayed twenty minutes after the administration of the ether had been commenced.

Twenty-four hours after ether anesthesia:

9. The red blood cells numbered 3,820,000; leucocytes 8000; hemoglobin 53 per cent. Cells fairly regular in size; poikilocytes rather common, and many crenated cells; leucocytes appeared to be normal.

Forty-eight hours after ether (May 6):

10. The red blood cells numbered 4,330,000; leucocytes 6000; hemoglobin 50 per cent (normal). Size of red cells uniform; crenated cells were uncommon; poikilocytes none. There were a few pale red blood cells.

Nine days after ether (May 13):

11. The red blood cells numbered 4,490,000; leucocytes 6000; hemoglobin 50 per cent.

THIRD ETHERIZATION (MAY 16).

Before ether:

12. The red cells numbered 3,920,000; leucocytes 6200; hemoglobin 51 per cent.

Under ether twenty minutes:

13. The red cells numbered 4,470,000; leucocytes 6000; hemoglobin 47 per cent. Here the rise in the number of red cells

was again enhanced by cyanosis, which in reality indicates that the hemoglobin for each individual red cell is greatly reduced.

Under ether one hour:

14. The red blood cells numbered 4,200,000; leucocytes 5600; hemoglobin 45 per cent. The red cells when stained displayed practically the changes noted at the second etherization, except that all changes were less decided, while the blood returned to the normal in about thirty-six hours.

Experiment No. 3. (L. B. 21).—May 5, 1902, a yellow rabbit, male, weight 4 lbs. 5 ozs.

Before ether:

1. The red blood cells numbered 6,230,000; leucocytes 13,000; hemoglobin 82 per cent. Films when fixed and stained with eosin and hemotoxylin showed the red cells to be well formed and normally stained; leucocytes also appeared as normal.

Animal under ether twenty minutes (one-half ounce of drug used):

2. The red blood cells numbered 5,760,000; leucocytes 6200; hemoglobin 76 per cent. The stained blood was normal except for a few feebly stained red cells, some of which appeared as mere shadows. This experiment differs radically from those previously related, since both the red cells and the leucocytes were reduced as the result of ether anesthesia. The fact that the leucocytes numbered 13,000 per cubic millimeter before the experiment may deserve special mention in this connection.

Animal under ether sixty minutes (one ounce of drug used):

3. The red cells numbered 5,430,000; leucocytes 6600; hemoglobin 72 per cent (loss 10 per cent). Loss in weight 1½ ounces. Stained blood showed decided poikilocytosis; cells stained fairly well, but displayed numerous unstained areas (punctate basophilia); microcytes and macrocytes were numerous. Pale cells previously noted present.

Twenty-four hours after ether:

4. Animal's weight normal, and he appeared to be in perfect health. The red cells now numbered 5,210,000; leucocytes 5250; hemoglobin 71 per cent (loss 11 per cent). In the stained blood, large lymphocytes and eosinophilic myelocytes (?) were rather common. The red cells were pale, and a few normoblasts seen.

Forty-eight hours after ether:

5. The red cells numbered 6,310,000; leucocytes 8660; hemoglobin 85 per cent (2 per cent above normal). The stained blood was as normal. In striking contrast to the previous results of ether anesthesia upon the number of leucocytes per cubic millimeter, this experiment does not show an increase but a decrease in the number of leucocytes. A similar result was observed in the case of one of our observations upon the human subject (see experiment No. 2).

SECOND ETHERIZATION (MAY 16, 11 DAYS AFTER FIRST ANESTHESIA).

6. The red blood cells numbered 4,730,000; leucocytes 8000; hemoglobin 79 per cent. Stained blood normal. The animal was given ether twenty minutes (½ ounce being employed), when death ensued. Just prior to death the red cells numbered 7,880,000; leucocytes 8000; hemoglobin 57 per cent (a loss of 22 per cent).

This decided reduction in the hemoglobin, coupled with an increase of 3,150,000 red cells per cubic millimeter, was the only unfavorable sign and appreciable precursor of a fatal issue. This animal did not develop leucocytosis at either anesthesia, and the proportionate relation of the different leucocytes was normal.

HUMAN EXPERIMENTS.

Experiment No. 1 (L. B. p. 42).—J. H., male, aged thirty-three years, apparently in good health, was given ether without previous purging.

Before ether:

1. The red blood cells were 4,080,000; leucocytes 7600; hemoglobin 86 to 95 per cent, several estimates being made with different instruments. Stained blood was in every way normal.

Under ether twenty minutes:

2. The red blood cells were 6,150,000; leucocytes 16,000; hemoglobin 79 per cent. No poikilocytes; microcytes numerous; no macrocytes found. All cells stained palely but evenly throughout. White cells showed an increase in the polynuclear elements.

One hour after ether:

3. The red blood cells numbered 8,220,000; hemoglobin 74 per cent, an increase of 2,070,000 cells per cubic millimeter. From the degree of cyanosis present it is fair to attribute a liberal portion of this increase to this condition. Hand in hand with an increase in the number of red cells, there was a loss of 12 per cent in the hemoglobin. It is at once apparent that 74 per cent of hemoglobin is an extremely low amount for a blood of such condensation, and that each red cell is extremely poor in coloring pigment. Leucocytes 9800. The leucocytes, which rose from 7600 to 16,000 during the first twenty-five minutes, had now dropped to 9800, despite the extreme degree of blood concentration. Studying these figures correlatively, one is forced to believe that a true leukopenia exists. Occasionally cells were seen which stained palely; no crenated cells. Variations in size of cell decided.

DIFFERENTIAL LEUCOCYTE COUNT.

Polymorphonuclear	cells	80.97%
Myelocytes	"	4.27 "
Transitional	"	11.00 "
Large mononuclear	"	1.11 "
Small lymphocytes		2.22 "
Eosinophiles	1%	.43 "
		100.00%

Twenty-four hours after ether:

4. There had been no vomit, and the patient had taken food and claimed to feel well. The red blood cells were 4,576,000; leucocytes 13,600; hemoglobin 67 per cent (loss of 19 per cent). In the stained specimens there were seen many macrocytes, many of which stained poorly, some only as shadows, and these were liable to be distorted (poikilocytosis). Leucocytes mostly large, mononuclear and polymorphonuclear forms.

Thirty hours after ether:

5. The red cells were 4,600,000; leucocytes 12,000; hemoglobin 78 per cent (an increase of 11 per cent in six hours).

Forty-eight hours after ether:

6. The red cells were 5,700,000; leucocytes 10,600; hemoglobin 80 per cent. There was an appreciable increase in the polymorphonuclear elements and in small lymphocytes. Two myelocytes were found. Eosinophilic myelocytes were also present. Some of the cells stained irregularly, but there were no pale cells as previously seen.

Seventy-two hours after ether:

7. The red cells were 4,780,000; leucocytes 7400; hemoglobin 85-86 per cent.

SECOND ETHERIZATION.

Before ether (patient not purged):

8. The red cells were 5,005,000; leucocytes 6700; hemoglobin 80 per cent. The stained blood appeared perfect in all respects.

Under ether twenty minutes:

9. The red cells were 5,310,000; leucocytes 8200; hemoglobin 74 per cent. Few megalobasts were present, but there was practically no distortion of the red cells; microcytes few; all red cells stained perfectly; white cells about normal relation, except for slight apparent increase in the eosinophiles.

Under ether forty minutes:

10. The red cells were 5,250,000; leucocytes 12,000; hemoglobin 77 per cent. Ether discontinued.

One hour after starting ether:

11. Perspiration free and slight vomiting. The red cells were 5,120,00; leucocytes 15,000—the gradual rise continued, reaching its maximum number at this stage; hemoglobin 72 per cent.

Six hours after ether:

12. The red cells were 4,430,000; leucocytes 11,000; hemoglobin 63 per cent (a loss of 17 per cent). Vomited four or five times in afternoon.

It has appeared to us that this feature (continued reduction) of the blood after ether anesthesia is of the utmost importance, especially where a second anesthetic is required, and that it is possibly accountable for a fair proportion of deaths following a primary anesthetic. In this patient the red cells were also reduced, and both the erythrocytes and the hemoglobin remained at this low ebb for twenty-four hours. The fact that no operation was undertaken is also to be considered in this connection.

Twenty-four hours after ether:

13. The red cells numbered 4,660,000; leucocytes 5800; hemoglobin 63 per cent.

Forty-eight hours after ether:

14. The red cells numbered 3,820,000; leucocytes 5700; hemoglobin 70 per cent.

Seventy-two hours after ether:

15. Vomited twice, and there has been moderate sweating. The red cells numbered 5,747,000; leucocytes 8250; hemoglobin 73 per cent.

May 16, 100 hours after ether:

16. Vomited yesterday and this morning; frequent perspiration, anorexia, and constant drowsing. The red cells numbered 3,920,000; leucocytes 6000; hemoglobin 76 per cent.

May 26:

17. Vomited yesterday and this morning. The red cells were 5,010,000; leucocytes 5000; hemoglobin 72 per cent. The patient recovered.

CASE II.—Mrs. A., aged thirty-two years, married; healthy, except for dysmenorrhea. Vaginal examination disclosed some thickening of the right ovary and its tube, with stenosis of the os uteri to the degree that it was impossible to introduce a small probe. The anesthetic was administered for the purpose of dilating the cervix. The patient was not purged before the anesthetic, and had been permitted to take a light breakfast at 8.30 A.M.; the anesthesia was begun at 2 P.M. Just prior to the administration of the ether an examination of her blood gave red cells 5,275,000; white cells 11,400 per cubic millimeter; hemoglobin 84 per cent. Fixed and stained specimens of the blood revealed nothing abnormal.

A DIFFERENTIAL LEUCOCYTE COUNT GAVE:

Polymorphonuclear cells	53	per cent.
Eosinophiles	1	" "
Mononuclears (large)	11	" "
Lymphocytes (small)	22	" "
Lymphocytes (large)	8	" "
Transitionals	5	" "

Ether sixteen minutes:

Red cells 5,950,000; leucocytes 10,200 per cubic millimeter; hemoglobin 78 per cent. There was no evidence of cyanosis at this time, and the patient appeared to be taking the anesthetic well. The stained blood showed great irregularity in both the form and size of the red cells; their surfaces staining unevenly, though this feature was not prominent.

Ether twenty minutes:

The red cells were found to number 6,400,000; leucocytes 6200 per cubic millimeter; hemoglobin 70 per cent. At this time there was present considerable evidence of cyanosis, and despite the decided increase in the number of erythrocytes per cubic millimeter, the hemoglobin continued to fall, having lost 14 per cent. The stained blood displayed a high grade of poikilocytosis, and there was present decided irregularity in the tinctorial properties of these cells. Many of the microcytes were deeply stained, while a smaller number of macrocytes were found to be very feebly stained. In many of the red cells staining normally, for the most part, there were irregular areas which remained unstained by the eosin. Certain other of the red cells were greatly swollen and appeared as mere shadows, surrounded by a marginal band of well stained protoplasm.

A DIFFERENTIAL LEUCOCYTE COUNT GAVE:

Polymorphonuclear cells	81	per cent.
Large lymphocytes	10	" "
Small lymphocytes	6	" "
Transitionals	3	" "

CASE III.—A female, fifty years of age, studied through the courtesy of Dr. W. Easterly Ashton. The woman had displayed some symptoms of endometritis for an indefinite period, but at no time had she exhibited evidence of anemia. She had neither been purged nor prepared in any way for the anesthetic, except that she had not received food in the morning. The blood was examined at 10.30 A.M., and the anesthetic promptly begun. Red cells 4,230,000; leucocytes per cubic millimeter 6800; hemoglobin 84 per cent. Stained specimens of the blood appeared to be normal.

A DIFFERENTIAL COUNT OF 600 LEUCOCYTES GAVE:

Polymorphonuclear cells	85	per cent.
Transitionals	10	" "
Large lymphocytes	4	" "
Myelocytes	0.5	" "
Large mononuclear	0.5	" "

After ether for sixteen minutes:

Red cells 5,000,000; white cells 14,000; hemoglobin 68 per cent. This fall continued, and at the end of twenty minutes registered 65 per cent (a loss of 19 per cent). The patient did not display appreciable cyanosis at the time of the taking of this count. Until the present there had been no operative interference, and she had taken the anesthetic very well. The reduction of 19 per cent in the hemoglobin and the increase of 8400 leucocytes per cubic millimeter are therefore attributable to the administration of the anesthetic.

A DIFFERENTIAL LEUCOCYTE COUNT OF 600 CELLS GAVE:

Polymorphonuclear cells	63.5	per cent.
Small lymphocytes	29.	" "
Large lymphocytes	4.	" "
Large mononuclear	2.	" "
Myelocytes	1.	" "
Transitionals	0.5	" "

The red cells, when stained with eosin and hematoxylin, were found to be deficient in hemoglobin, most of the cells being understained. Many others were distorted and swollen, their centers staining but slightly if at all, while their margins presented a narrow, rather well-stained band. In fact, the central spot normally present in the red cell was slightly enlarged in cells appearing to be otherwise normal. During the study of three specimen smears of the blood three nucleated red cells were found (normoblasts). Further observation upon this case was impossible.

CASE IV.—Observation made at St. Agnes Hospital, through the courtesy of Dr. E. Laplace. It was impossible to conduct an examination of the blood prior to the administration of an anesthetic. The patient displayed no evidence of anemia, the anesthetic being administered for the purpose of dilating a urethral stricture.

Ether for sixteen minutes:

Red cells 4,850,000; white cells 13,000; hemoglobin 70 per cent. Stained specimens of the blood were found to present the changes observed in Case III. Some of the red cells showed numerous streaks and punctate areas disseminated throughout their protoplasm which did not stain with eosin, and from which areas the hemoglobin had doubtless been extracted. These punctate areas were slightly stained by hematoxylin, but the picture presented by the individual cells was not that of true punctate basophilia. One nucleated red cell was seen (normoblast).

A DIFFERENTIAL COUNT OF 600 LEUCOCYTES GAVE:

Polymorphonuclear cells	53 per cent.
Eosinophiles	2 " "
Small lymphocytes	14 " "
Large lymphocytes	10 " "
Large mononuclear leucocytes	16 " "
Transitionals	4 " "
Myelocytes	1 " "

SUMMARY OF FINDINGS.

Our experiments on animals showed that the hemoglobin was reduced in every instance as the result of ether anesthesia; this reduction varied somewhat according to the length of time the anesthetic was continued. It was further noted that approximately 10 per cent of hemoglobin was lost during the first twenty minutes after the anesthetic state was attained.

The hemoglobin reaches its lowest point in from twenty-four to thirty hours after ether anesthesia. Rarely, the oligochromemia is extremely great, but here again practically one-half the total reduction of hemoglobin was detectable during the first twenty minutes of complete anesthesia.

It was a rule for animals to display a less decided loss in hemoglobin during second and third etherizations than at the first ether narcosis, and it was further found that this loss was likely to be restored within a shorter period of time than was that resulting from the primary anesthesia.

In the human subjects the reduction in the hemoglobin was no less decided than in the rabbits, one-half or more of the fall in the coloring pigment taking place during the first twenty minutes of the anesthetic state. This was notable even in cases showing an increase of red cells per cubic millimeter; in fact the rule was to find the hemoglobin reduced and the red blood cells increased at the expiration of twenty minutes.

Polycythemia.—Polycythemia was always found to be more or less directly the result of cyanosis, and its extent was proportional with the degree of cyanosis. In all our experiments the number of red blood cells per cubic millimeter was increased after ether for a period of twenty minutes, and when cyanosis was evidenced this rise was seen to remain above the normal number of cells per cubic millimeter until the anesthetic was withdrawn and the lividity of the patient disappeared. That there had been an actual loss in the number of red blood cells per cubic millimeter as a result of the anesthetic appeared reasonably certain, yet it was not possible at all times to demonstrate this feature satisfactorily.

Changes in the red blood cells as the result of ether anesthesia were always present after the anesthetic state was attained. When cyanosis was present and the blood found to flow sluggishly from the site of puncture, the individual red cell appeared thick and compact, and its edges thickened. The central biconcavity was often obliterated from such cells.

In blood obtained during and after the ether narcosis, degeneration of the red cells was commonly present. This con-

sisted in a simple pallor of the cells in the milder forms, while in the more decided instances (great loss of hemoglobin) there were to be seen many microcytes which stained deeply, and a number of macrocytes whose protoplasm stained feebly. At times these large cells appeared as mere shadows surrounded by a well stained marginal band of varying depth.

Small streaks and irregular patches of pallor were seen disseminated over the surface of many of the red cells, and outlined areas from which the hemoglobin had been extracted.

True punctate basophilia, as seen in lead workers, was not well marked. At times the large distorted red cells (macrocytes) displayed an affinity for both the acid and basic stains (polychromatophilia).

Nucleated erythrocytes were occasionally found.

Leucocytes.—Leucocytosis was found to develop in three out of the four animal experiments, and to reach its highest point in from twenty minutes to one-half hour, following the commencement of anesthesia. In some instances the number of leucocytes did not show any marked increase, while in a third class these cells were greatly reduced per cubic millimeter as the result of the anesthetic. Where a reduction in the number of leucocytes per cubic millimeter was found to follow ether narcosis, it was likely to proceed to a leukopenia, resulting in approximately one-half the number of leucocytes originally present for the animal. While ether generally excited leucocytosis, this condition was of short duration, the leucocytes (per cubic millimeter) returning to the normal within from twelve to thirty hours.

Differential leucocyte counts were never found to show any points either of interest or value. In a few instances myelocytes were detected.

In the experiments upon human subjects it was found that an increase of from one-third to double the normal number of leucocytes followed ether anesthesia in one class of cases, this change taking place during the first twenty minutes of anesthesia. In one case they were slightly reduced in number. In all cases the leucocytes soon returned to the normal number per cubic millimeter following a return to consciousness. A differential study of the leucocytes disclosed nothing of positive clinical importance. Myelocytes (in small numbers) appeared in the human blood after ether anesthesia.

AN INORGANIC OIL SOLUTION OF ACETOZONE FOR TREATING SUPPURATION IN THE LOWER AIR-PASSAGES.

By John Johnson Kyle, B.S., M.D., Indianapolis, Ind.,

Lecturer on Otology, Laryngology, and Rhinology, and Assistant to the Chair of Surgery, Medical College of Indiana; Oculist and Aurist to St. Vincent's Hospital; Aurist and Laryngologist to City Hospital, Indianapolis; Member American Medical Association; Member American Academy of Ophthalmology and Otolaryngology; Late Major and Surgeon U. S. Volunteers.

During the past year I have had a great deal of clinical experience with a solution of acetozone in inorganic oil used in a nebulizer or atomizer for the treatment of various pathological conditions of the trachea and lower air-passages. My experience has shown me that in the treatment of certain conditions of the eye, due to trauma, and especially in the treatment of suppurative conditions of the nose and upper air-passages, a watery solution of acetozone does not meet the conditions much better than many of our more simple antiseptics; but I have found that a solution of the drug in inorganic oil sprayed into the lower air-passages is followed by the best results I have seen, and I am a convert to this treatment, and in fact, in such conditions as mentioned, I use no other medicinal treatment. I find that the suppurative condition is rapidly abated, frequent microscopic examinations of the secretions showing a rapid and progressive diminution of the microorganisms with a coincident amelioration of the symptoms. In illustration of these remarks I cite the following cases:

Case I.—Elderly man, engaged in public life, had suffered from periodical attacks of what was called bronchitis; these attacks having a history of some years' duration. General health of the patient was impaired, vitality lowered, and his ability to transact business seriously interfered with. A careful examination to which he was subjected on the occasion of his first visit determined a diagnosis of

chronic bronchitis. Expectoration was very profuse, particularly in the morning. At this time a careful microscopic examination of the sputum was made, and streptococci in almost pure culture were found in profusion. All of the mucous membranes of the air-passages were congested, swollen, and markedly hypersensitive. A catarrhal condition of the upper air-passages was also in evidence. As a result of past experience in similar conditions, I put the patient upon acetozone inhalant alone, no other medicine being given. The patient was directed to use this preparation in a small atomizer, spraying the drug into the throat and inhaling deeply, for a few minutes at each treatment, or until slight irritation was felt in the throat and trachea. This treatment was to be repeated four or five times daily. At the end of the week, when the patient reported at my office, another examination was made, and the general symptoms were somewhat abated. A microscopic examination of the sputum was also made at this time and showed only a few streptococci, which were found after a very careful search of several preparations of the sputum. The treatment was continued, and at the end of the third week no pathogenic organisms were found in any of the slides which were prepared at this time. The symptoms, both subjective and objective, were abated, and the patient's physical condition very much improved. I advised a continuation of the treatment once or twice daily until complete recovery was obtained, and sent the patient home. Through recent correspondence with him I learn that he is enjoying better health than for a number of years.

I attribute his recovery to the action of acetozone inhalant, and this case is an excellent example of the germicidal value of acetozone administered in the form of an oily spray for inhalation.

A certain technical point in the administration of acetozone inhalant must be observed in order that the good effects of the drug be obtained. It is this: The acetozone inhalant must be administered only for a few moments at a time, or until symptoms of irritation are manifested. If the administration of the inhalant is persisted in after these symptoms appear, it produces decided irritation, which in some cases is quite painful and persists during some hours. I have known the unpleasant effects to last more than twenty-four hours. This is not only unpleasant, but unnecessary, and tends to discourage the patient—in fact, one or two of my clients have not returned after the second or third treatment. I have found that it is quite sufficient to administer acetozone for a minute or two, allowing the patient to rest for two or three hours before another administration. In this way only slight irritation manifests itself, and this is more of an advantage than otherwise. Patients are not discouraged, and the results are all that could be desired.

I have in mind another case which shows the action of acetozone inhalant in a marked manner.

CASE II.—A young woman, unmarried, aged twenty-three years, had suffered from an acute attack of bronchial pneumonia some weeks before consulting me. She desired relief from constant bronchial irritation, attended with intermittent cough and some symptoms of tuberculosis. It appeared that her convalescence from pneumonia was unduly prolonged, and that her family had become much alarmed over her retarded recovery and "feared that she was going into consumption." She was pale, somewhat anemic, and suffered from extreme lassitude and weakness. Expectoration was quite profuse. I made a careful microscopic examination of the sputum, which disclosed a most interesting pathological condition. I had made quite a number of preparations, an examination of which disclosed practically the same condition in all of them. In order to minimize all chances of error in the findings, I had an independent examination made by Dr. Dodds, lecturer on bacteriology in Indiana Medical College, who verified my findings in every particular. This young lady's sputum contained quantities of streptococci, staphylococci, pneumococci, and Friedlander's bacilli, but no tubercle bacilli could be found at any time. The patient was put upon acetozone inhalant and directed to spray the drug into the lower air-passages, at the same time inhaling deeply, using a small but efficient hand atomizer. She was also advised to eat very plain, nourishing food, to remain out-of-doors in the sunshine as much as possible, to avoid hard work or exercise,

and the various emanations were to be insisted upon regularly. No other medicine than acetozone inhalant was prescribed or used. At the end of the week when she reported at my office, there was marked amelioration of the symptoms, and microscopic examinations of the sputum showed a marked diminution of the number of organisms. The treatment was kept up by the young woman, who reported weekly at my office. At the end of the fourth week her condition was so much improved, both physically and mentally, and the microscopic examination showed so few organisms, that she was sent out into the country, more for a change of scene and the more constant outdoor life than for anything else, and she was directed at the same time to keep up the inhalation of acetozone. There was a gradual and progressive diminution of the cough and expectoration, her general health showed a most marked improvement, and at the present time I believe her cured.

I could cite many other cases similar in outline to the two mentioned, but these are typical and illustrate my experience as well as a large number.

The formula for the solution which I have used is as follows:

Acetozone crystals, 0.5 gramme;
Chloretone crystals, 0.5 gramme;
Refined bland mineral oil, 99.0 grammes.

This was especially made up for me, but I understand that it can be obtained of most pharmacists.

A STATISTICAL REPORT OF THE CASES OF ACCIDENTAL GUNSHOT WOUNDS FOLLOWING THE FOURTH OF JULY CELEBRATION, TREATED IN THE CITY DISPENSARIES OF THE CITY OF ST. LOUIS WITH THE ANTITETANIC SERUM.

By Henry J. Scherck,
Chief Dispensary Physician, St. Louis Health Department.

Having investigated the deaths from tetanus occurring in the city of St. Louis following the celebration of the Fourth of July, 1903, I addressed a letter to the Health Commissioner, requesting that I be authorized to immunize every case of accidental gunshot wound produced by toy pistols, blank cartridges, cannons, etc., following the celebration of the national holiday of the present year. It is well in this connection to state that the fact that I intended to adopt this plan was freely given to the press, with the result that every paper published in the city of St. Louis gave it a great deal of publicity, and no doubt had the effect of having practically all cases of this class of wounds referred to the various city dispensaries in order that they might be immunized. This was further made advisable inasmuch as it being a legal holiday the depots for the supply of the serum were closed and the physicians were unable to obtain same. A number of physicians telephoned me requesting a supply of the serum. The request of each physician was answered by the statement that we would be glad to treat and immunize the patient if sent to the dispensary, which was done in every case. As will be seen from the tables that immediately follow, there were no less than 37 cases treated at the various city dispensaries.

In order that this report may be complete, I will give herewith a list of the names of the children treated during July and August of 1903, together with a list of those who died from tetanus, following the Fourth of July. There were in all 56 cases treated.

TABLE OF CASES TREATED DURING AND AFTER THE FOURTH OF JULY, 1903.

Name.	Description of wound.
Napoleon Bonapart	Gunshot, hand.
Clarence Decker	" "
Fred Hartman	" "
Tony Morgan	" side.
Jas. Martin	" abdomen.
Cy. Owens	" shoulder.
Edmond Powell	" hand.
Bernard Kelly	" "
Mary Parr	" "
Harry Rosenthal	" face.
Frank Boggs	" shoulder.
Otto Schroeder	" hand and face.
G. H. Lawson	" finger.
Frank Gardner	" hand.
Willis Tanhill	" finger.
Mike Brennan	" knee.
Fred Necker	" shoulder.
Bob Shanklin	" shoulder.
Tony Harris	" hand.
Wm. J. Peters	" leg.
Walter Brown	" hand.
Tony Sclorotto	" "
Nick Kohn	" "
Lizzie Martin	" "
Jake Harris	" "
Frank Morrison	" "
Wm. Rice	" "
John West	" "
Chas. Boss	" "
Ed Barnard	" "
Lonie Rock	" "
Geo. S. Wood	" "
W. Reinhard	" "
Harry Vinton	" "
Joe Holker	" face.
Hy. Jennings	" hand.
Albert Klinck	" "
John West	" "
Marshall Shetterly	" leg.
Eddy Gallagher	" hand.
John Buck	" "
W. Hanson	" "
Bertie Bottum	" "

TABLE OF DEATHS FROM TRAUMATIC TETANUS, JULY AND AUGUST, 1903.

Name.	Age.	Date of death.	Contributing cause.
Louis Benedick	11	July 7	Gunshot wound.
Clarence Decker	12	" 19	" "
Wm. Smith	9	" 11	" "
Edw. L. Hein	12	" 9	" "
Benj. Gross	12	" 11	" "
Edw. Dewal	16	" 12	" "
H. M. Burnstein	18	" 12	" "
Albert Mengerson	7	" 1	" "
Jacob Harris	11	" 13	" "
M. J. Brennan	18	" 12	" "
Clarence A. Roes	11	" 13	" "
Chas. Burnes	11	" 16	" "
Morris Finkelstein	12	" 16	" "
Edw. J. Weiss	13	" 20	" "
Ollie Williams	24	Aug. 3	" "
Chas. Holloran	9	" 29	" "

As will be seen from the above tables, out of 56 cases treated, there were no less than 16 deaths following, giving a percentage of 33½ of deaths.

This year a careful list was kept of the names and addresses of every child applying at the various city dispensaries, beginning on July 3. A circular letter was addressed by me to the various assistant dispensary physicians, instructing them as to the handling of these cases. They were told, first, to freely incise every wound; to thoroughly remove from same every particle of foreign matter found; to cauterize the wound thoroughly with a 25-per-cent solution of carbolic acid, and to apply a wet pack of a 5-per-cent solution of carbolic acid; after this, to inject into the abdominal wall 10 cubic centimeters of immunizing antitetanic serum, after having first thoroughly scrubbed the skin with soap and water and washed it off with alcohol. They were further instructed to have each case return daily for dressings and for record of temperature and other symptoms. Those cases that did not return were followed up by being seen at their residences. In all, 37 cases were treated and injected with the serum. *Not one single case developed tetanus.* There were four deaths, however, following July 3 of the present year. None of these, however, were immunized with the antitetanic serum, nor were they handled by the city dispensaries.

As a deduction from the above I have no hesitancy in stating that I believe that the injection of an immunizing dose of 10 cubic centimeters of antitetanic serum administered shortly after the infliction of a wound likely to produce tetanus will, without doubt, neutralize the poison introduced. I am equally certain from the cases of tetanus which I have observed that have been treated with the serum some time after the injury, the results have not been satisfactory. When the symptoms of tetanus have developed the patient is practically dying of the disease, and at this time the serum has little, if any, effect in curing it.

The following is a complete list of the cases treated, together with their age, color, date of injury, and description of the wound and the result:

Name.	Age.	Color.	Date of injury.	Description of wound.
Geo. Salary	17	W.	July 2	Penetrat'g wound right hand, tine pitchfork.
Harry Billings	13	W.	" 3	22 blank wad, penetrating upward between 3d and 4th fingers right hand.
Walter Hayes	10	W.	" 3	Gunshot wound right palm by 22 blank wad.
Chas. Oates	12	W.	" 3	Gunshot wound left foot.
Frank Sharz	13	W.	" 3	Gunshot wound middle fingers and palm left hand.
Reuben Cohn	13	W.	" 2	Powder burn from 22 blank.
Geo. Bipscomb	14	C.	" 3	Gunshot wound 2d joint left index-finger.
Morris Arnowksi	8	W.	" 3	Gunshot, 22 blank, abrasion left buttock.
Clarence Fellows	18	W.	" 3	Gunshot, 22 blank, left shoulder.
L. Rosenbaum	14	W.	" 3	Gunshot, left palm.
S. Fulton	12	W.	" 3	Gunshot, right hand and index.
Franz Natoli	...	W.	" 3	Gunshot wound left hand.
Erick Burns	13	W.	" 4	Torpedo explosion, lacerated wound right instep.
R. Fehlmann	14	W.	" 4	Wad from toy cannon in left palm.
Leo Feicker	16	W.	" 4	Gunshot, left hand.
Fred Foster	8	W.	" 4	Gunshot, lower 3d left thigh
Jno. Hartin	12	W.	" 4	Wad from 22 blank, left palm.
Willie Dunn	10	W.	" 4	Wad from 22 blank, left palm.
Geo. Major	8	W.	" 4	Bomb explosion, lacerated wound right palm.
Elmer Olsen	...	...	" 4	Gunshot, left index-finger.
Jos. Palazola	13	W.	" 4	Gunshot, left palm, 22 wad.
L. Casey	12	W.	" 4	Gunshot, right index, 22 wad.
Irene Springer	12	C.	" 4	Gunshot, right hand
Lue Shuee	43	China.	" 4	Gunshot, blank wad over right orbit.
Chas. Ogle	8	W.	" 4	Gunshot wound right palm.
Jno. Prack	10	W.	" 4	Gunshot wound left palm.
F. Jackman	7	W.	" 4	Gunshot wound left palm.
W. J. Sullivan	18	W.	" 4	Powder can explosion, lacerated scalp and forehead.
E. Schneider	...	...	" 5	Gunshot wound, 22 blank wad, right hand.
Frank Leonard	13	W.	" 5	Gunshot wound, 22 blank, left little finger.
Jos. Mahon	12	W.	" 5	Gunshot wound right palm.

Name.	Age.	Color.	Date of injury.	Description of wound.
Arthur Clemmons.	14	W.	July 3	Gunshot, left palm.
Leo Dolan.....	...	W.	" 5	Gunshot, left hand.
Alois Erdelen.....	...	W.	" 5	Gunshot, left palm.
Hy. Schlenker.....	...	W.	" 4	Gunshot, right hand.
Rudolph Henger...	...	W.	" 4	Gunshot, right index-finger.

The following are the deaths recorded in the mortuary office of the Health Department during July and August from tetanus, and as before mentioned, none of them were handled by the city dispensaries, nor were they immunized at the time of the infliction of the wounds:

DEATHS FROM TETANUS DURING JULY, 1904.

Name.	Age.	Date of death.	Contributing cause.
Chas. J. Helvey.....	13	July 7	Accidental gunshot wound.
Geo. Walz.....	14	July 14	Accidental gunshot wound.
Lizzie Cleveland.....	...	.....	Accidental gunshot wound.
Ed. McKee.....	44	July 20	

The following letter from the City Bacteriologist is also of great interest in connection with these statistics:

ST. LOUIS, MO., Aug. 25, 1904.

Dr. Henry J. Scherck,
Chief Dispensary Physician, St. Louis:

DEAR SIR—The following is my report upon the tetanus toxin and tetanus antitoxic serums which you submitted to me for testing:

The toxin was labeled 1:40,000,000 gramme of the toxin as the M. L. D. for a gram of guinea-pig. The commercial serum was labeled 100,000 immunizing units per c. c. The special serum was labeled 200,000 immunizing units per c. c.

The antitoxic serums had been standardized, so that one unit would protect one gram of guinea-pig against one hundred of its M. L. D.

I inoculated four guinea-pigs, each with one hundred times its M. L. D. of toxin. Pig No. 1, which weighed 310 grams, was kept as a control, receiving no antitoxin.

Pig No. 2 weighed 400 grams. 400 units of the special serum was given, which was the exact amount necessary to protect it against the one hundred M. L. D. which it had received.

Pig No. 3, weight 460 grams, was given 460 units of the commercial serum, which was the exact amount necessary to protect it against the one hundred M. L. D. which it had received.

Pig No. 4, weight 430 grams, was given 1720 units, which was four times the amount necessary to protect it against the one hundred M. L. D. which it had received. I used this large amount so that if the serum had been standardized wrongly, or had deteriorated in strength, it would have four times the advantage in protecting the animal which had received it.

RESULTS.

The unprotected pig at the end of sixteen hours, which was the earliest time observation was made, showed symptoms of tetanus on the side wherein the inoculation was made. It died at the end of twenty-four hours. None of the other pigs showed the slightest symptoms of tetanus. Seven days have now elapsed.

Respectfully,
C. A. SNODGRAS, M.D.,
City Bacteriologist and Pathologist of the City Hospital.

The above report shows that the serum used was efficient and fully protected the animals.

315 CENTURY BLDG.

THE PROBLEMS OF THERAPEUTICS.[1]

BY SIR LAUDER BRUNTON, M.D., D.Sc., LLD.,
Consulting Physician to St. Bartholomew's Hospital, London.

(Concluded from p. 656.)

In my address at Moscow in 1897 I ventured to formulate the idea that "immunity, natural or acquired, is nothing more than an extension to the cells of the tissues generally of a power which is constantly exercised during digestion by those of the intestine and liver."

When microbes were just beginning to be recognized as the cause of infective disease too much importance was attached to the mechanical effects which they might produce in the blood-vessels and tissues. As their mode of action became better known, this view was to a great extent given up, but though the small vegetable microbes, bacilli and cocci, have little injurious mechanical action, this is not the case with some minute organisms belonging to the animal kingdom, and such organisms of late years have become more and more recognized as causes of diseases. In elephantiasis the lymph channels become blocked by the ova of a small worm which inhabits the blood, and thus the enormous swelling characteristic of the disease is produced. Within the last few years that dreadful scourge of tropical countries, malaria, has been discovered to be due to an animal parasite, and Manson and Ross have shown that the source of infection is the mosquito. By destroying mosquitoes or preventing their multiplication the disease can be to a great extent prevented, but we are still dependent upon bark, quinine, and arsenic as remedies to destroy

[1]Address delivered before the Section on Therapeutics and Pharmacology at the International Congress of Arts and Science at St. Louis, Sept. 24, 1904.

the parasite and cure the disease. These are not invariably successful, and we are still in want of medicines which shall infallibly destroy the parasite. The same is the case with other maladies where the infective microbe is of animal origin as in sleeping sickness, which is now attributed to a minute worm in the blood, or of vegetable origin as in ulcerative endocarditis, or of uncertain origin as in yellow fever. But all these diseases excite much less attention than that which is perhaps more dreaded than any other in temperate climates, namely cancer. We do not as yet know the pathology of this disease. It has been shown that in it the cells of the affected part multiply and grow in a different manner from that of ordinary tissues. They assume a reproductive type and grow independently of the tissues of the body in which they are situated. We know that portions of carcinomatous growths may be carried by the blood stream from one part of the body to another, where they may act as new foci, but they can be transplanted with difficulty if at all from one animal to another, and thus it is evident that although their reproductive power is great their vitality is feeble. Therefore what one may hope for is, that although all the drugs hitherto tried have been powerless to prevent the life and growth of such tumors, yet something may yet be found which will attack and destroy them and nevertheless leave uninjured the healthy tissues by which they are surrounded. Lupus and rodent ulcer situated on the surface of the body have been successfully treated by the x-rays and ultraviolet rays. These have little effect on deep seated cancer. My friend Sir William Ramsay thinks however that the emanations from radium which are to a certain extent soluble in water might be administered with a view of destroying internal cancer, more especially as he has already found that they seem to have no injurious action when given to healthy animals.

In the case of cancer it is certain that groups of cells take on a life of their own and live independently of the wants of the organism as a whole, and in some other diseases we find that entire organs become too active and thus injure the health of the whole body. One of the best examples of this is the thyroid gland, which, when hypertrophied, produces, through the secretion which it pours into the blood, a curious set of nervous symptoms, dilatation of the vessels, palpitation of the heart, tremor, restlessness, excitement and rise of temperature. In the disease known as Graves's disease these symptoms exist and may possibly be aggravated by the condition of the nervous system which causes the characteristic protrusion of the eyeballs and the swelling of the thyroid itself. But that most of the symptoms are really due to the thyroid secretion is shown by the fact that they may all be observed after excessive administration of dried thyroid gland. Here we have a toxin formed within the body by the overaction of one of its parts, and at present we have no satisfactory antitoxin by which we can remove the symptoms, although suprarenal gland has an action somewhat antagonistic to that of the thyroid, and this gland or its extract when administered internally in cases of exophthalmic goitre sometimes appears to be beneficial. The case is very different however when, instead of being excessive, the action of the thyroid is deficient. When this occurs in adults the circulation becomes poor, the skin cold, the movements of the body and the action of the mind slow, the aspect becomes dull and heavy and the features puffy and swollen. When thyroid gland or its extract is given all these symptoms disappear, and the patient becomes healthy for the time and usually remains so as long as the administration is continued. When deficiency of the thyroid occurs in childhood the effect of treatment is still more manifest, for the child thus affected becomes stunted both in body and mind, is dwarfish, feeble, and idiotic. Under the administration of thyroid it grows rapidly and becomes strong and intelligent, and indeed develops into a perfectly normal person. The cure effected by thyroid in such cretins is one of the most marvelous achievements of therapeutics, and many attempts have been made with portions of other organs or extracts of them to supply material which is supposed to be absent in various diseases.

The first instance of this method of treatment, or opotherapy as it is called, was I believe my employment of raw meat thirty years ago to supply the body

with a ferment to use up sugar in diabetes.* The method was reintroduced by Brown-Séquard with more success, but it was not until the use of thyroid gland and its extract that the potentialities of the method became acknowledged. It is more than eighteen hundred years since the question was asked "Who can add a cubit to his stature?" and all this time we have remained ignorant of any plan by which we could add a single inch to a child's stature. Yet it now seems possible that by the use of thyroid gland and pituitary body, children who would be otherwise stunted may grow not only to the normal size but even above it.

So long, however, as we do not know the chemical nature of the substances which exercise such an extraordinary effect upon tissue change we shall not be able to deal with them satisfactorily. We can now, in a way that was formerly impossible, regulate the temperature in fever. The clinical thermometer not only shows us the extent to which fever is present, but it enables us to stop the application of our remedies in time so as not to reduce the temperature to too great an extent. Cold water, ice and diaphoretics were formerly the only antipyretic remedies, next salicin and quinine were introduced, then salicylic acid was made synthetically, and being cheap was used extensively, and within the last thirty years an increased knowledge of chemical methods and of the relationship between chemical constitution and physiological action has enabled numerous synthetic products to be formed, some of which may be more useful in certain cases than the original salicylate of soda.

A great many of these substances primarily intended to reduce the temperature have turned out to have a still more important action, namely, the relief of pain. There is no doubt that pain is useful as a warning against conditions which tend to destroy the organism, and leads us to shun or remove these conditions to the great advantage of our health, but it is not always possible to do this, and pain *per se* is one of the greatest evils that poor humanity has to bear. The introduction of antiseptics has completely revolutionized the art of surgery because it allows operations to be done with almost certain success which would in former days have almost inevitably proved fatal from unconscious contamination of the wound by disease germs. But the greatest triumphs of surgery have only been rendered possible by the discovery of anesthetics. Previous to the work of Long, Jackson, Wells, Warren and Simpson rapidity of operation was everything—careful but long continued manipulation was impossible, because the long continued pain of the operation would inevitably have killed the patient. Even the minor pains of neuralgia, neuritis and headache, though not dangerous to life, are most distressing to the sufferer. Formerly there was almost no drug to relieve these excepting opium, while now we have phenacetin, antipyrin, phenalgin, and a host of others, and chemists are daily at work preparing new and perhaps even better pain killers.

Hardly, if at all, less distressing than pain is sleeplessness, and here again our powers of helping the patient have been enormously increased of late years. When I was a student almost the only hypnotics used were opium, henbane, and Indian hemp. The latter two were very unsatisfactory, and practically one pinned one's faith on opium, which had to be combined with tartar emetic in cases of fever. Then came the introduction by Liebreich of chloral, which was not only a great boon in itself, but marked an epoch as one of the first instances of rational therapeutics, the application of a certain drug in disease because of its pharmacological action. Now we have any number of hypnotics, some of which are useful because they act on the nervous system itself and produce sleep without depressing the heart, and can thus be given where the circulation is already weak, while others, like chloral, not only act on the cerebrum, but lessen the force of the circulation, and by thus diminishing the flow of blood through the brain assist it to rest and aid the onset of sleep. Formerly, when the circulation was too active, the chief depressants were mercurial and other powerful purgative medicines, bleeding, tartar emetic, vegetarian diet or partial starvation. Although these means may still be employed with advantage in proper cases, yet we have in addition a new set of remedies, viz., vasodilators, including nitrites, nitrates, and possibly a good many sub-

British Medical Journal, 1873.

stances which dilate the vessels and lower the tension in the arteries, a tension which may be dangerous on the one side to an enfeebled heart, and on the other to an atheromatous artery in the brain.

When the heart is failing we have a series of cardiac tonics and stimulants. Foremost amongst these, perhaps, may be put strychnine, the action of which on the heart was practically unknown when I was a student, and perhaps now it is hardly sufficiently recognized. At the time of which I speak, digitalis was looked upon as a cardiac depressant, and almost the only cardiac stimulant that was known was alcohol. Now digitalis, strophanthus and a number of others are regularly used as cardiac tonics, and their power of contracting the vessels is also sometimes useful in removing dropsy; when this action is likely to be harmful to a weak heart it may be lessened by the simultaneous administration of vascular dilators. We still, however, want drugs which will act only on the heart, or only on the vessels. We require medicines which will diminish the cardiac action and dilate the vessels for use in high tension, such as so often occurs in gout, and we need drugs which will make the heart beat more forcibly while they cause the vessels to contract and raise the tension in cases of debility.

But prevention is better than cure, and if by modifying tissue change we can obviate the high tension and hypertrophy of the heart which so frequently lead to apoplexy, or the atheromatous condition of the vessels which leads to senile degeneration of the brain or premature old age, we shall lessen the necessity for either cardiac tonics or vascular dilators. Some authorities claim that they can do this by vegetarian diet, limited in quantity as well as quality, while others would treat it by a diet almost entirely of meat, with liberal potations of hot water.

The subject of diet is one regarding which the most contradictory opinions prevail, and there is a sad want of precise knowledge upon which to base dietetic rules. We may hope, however, that the investigation at present being conducted by Professor Atwater under the United States government, combined with that which is being carried on under the auspices of the Carnegie Trustees, will furnish the information we need.

Time will not allow me to do more than mention the rest—aerotherapeutics, balneotherapeutics, and hydrotherapeutics; the rest-cure, which is associated with the name of one of America's most brilliant and versatile sons, Weir Mitchell; massage and movements, which Ling and his pupils both in Sweden and elsewhere have done so much to elaborate, and which when rightly used may be so beneficial, and wrongly used so harmful.

For all these branches of therapeutics we require a more exact knowledge of their action and the rules for employing them, so that even those who have made no special study of them may employ them rightly in all diseases in which they may possibly be of service.

Another method of cure consists in eliminating waste products from the body by rendering them more soluble, and thus in gout while limiting the amount of water drunk would give lithia, piperazine, piperidine and other substances which increase the solubility of uric acid. Before therapeutics can make much advance in this direction we must know more about the pathology of gout and tissue metabolism generally, and we may then hope that not only will people be more free from the manifold symptoms that gout produces, but will live longer, and the time of their activity, bodily and mental, will continue nearly as long as life itself. The power of increasing elimination of nitrogenous waste which urea possesses in a marked degree is shared by other substances belonging to the so-called purin group, and day by day fresh bodies belonging to this chemical group are being made synthetically. Some of the new ones seem to have a greater power of eliminating waste than any we have hitherto had. The observations of Richardson that alcohols vary in their action according to their chemical composition, and of Crum, Brown and Fraser that alteration in chemical constitution brought about change in physiological action, are now beginning to bear rich fruit, and the synthetic preparation of remedies having different pharmacological properties, along with our increasing knowledge of pathology, gives us much hope for the future of therapeutics. More than two hundred years ago Locke said if we knew the effect of drugs on man as a watchmaker does those of his operations on

watch, we should know that aloes would purge, hemlock would kill, and opium make a man sleep. One of the great problems of therapeutics is not only to know what drugs to use in order to obtain certain effects, but to know how to make such drugs if we have not got them at hand.

The struggle for existence does not occur only between man and beast, man and man, nation and nation, nor even between individual beasts or plants. It takes place also between cell and cell, not only between those cells which we term microbes and the cells of which the human body consists, but even between those which form the different parts of the body itself. The great object of this congress is to unify knowledge, to render evident the similarity of the laws which govern phenomena of the most diverse character, and it is therefore interesting to find that the grand problem of therapeutics is for the cell what those of religion and sociology are for the man, viz., to learn how to regulate the environment of each man or cell in such a manner that the individual shall not work for his or its own good alone, but for that of others as well, and that useless or noxious individuals shall be repressed or destroyed.

When we are able to regulate cell life by food, air, water, exercise, inoculations or medicines, we shall be able to relieve or remove weakness, pain or distress not only from the bodies but also from the minds of our patients, to maintain health, increase strength, and prolong life to an extent of which at present we can hardly dream.

ON THE RELATION OF THERAPEUTICS TO OTHER SCIENCES IN THE NINETEENTH CENTURY.[1]

By Oscar Liebreich, M.D. Berlin, D.C.L. Oxon., Professor of Pharmacology in the University of Berlin.

(Concluded from p. 660.)

The 19th century has been distinguished by the discovery of the causes of disease. But this does not give us means of "curing." As the history of therapeutics, however, shows that in the case of serious maladies, such as syphilis and malaria, the remedies have been found long before the recognition of their cause, we must continue to search for remedies independently of the causes of disease. So far the knowledge of morbific agents has been more important for prevention than for cure.

On the other hand, remedies like iodoform are entirely ineffective on bacteria outside the system, whereas after the entrance of this substance into the cells an energetic force is opposed to the invaders. As in every observation we must be careful not to draw too far-reaching conclusions, because the possibility of reactions taking place outside of the organism may also hold good within it, as, for instance, in the treatment of lead poisoning. Therapeutics, thanks to Melsens, celebrated a great triumph here, for the iodine of the iodide of potassium administered in this disease combines with the lead united to the albumen molecules, forming iodide of lead, and can then leave the body dissolved in the alkaline juices of the organism, and thus bring about a cure.

It may be said in passing, that in the case of many active substances specific chemical processes take place, as are, for instance, seen in phosphorus poisoning. Phosphorus, though usually so easily oxidized, when absorbed, is not oxidized quickly enough by the oxygen of the cells; in the presence of turpentine oil, however, a transference of the oxygen occurs, and the phosphorus is more rapidly oxidized, combines with the oil of turpentine, and, as we must assume, forms turpentine-phosphoric acid, which is innocuous to the system. By the ingestion of oil of turpentine the organism can thus overcome the cause of illness.

Unfortunately we do not possess similar remedies for some other toxic morbific agents which are taken up by the cell.

Since for the progress of therapeutics it is necessary to consider the chemical and physical qualities of the body, therapeutics is naturally dependent upon progress in chemistry. Although, as has already been shown, pharmaceutical chemistry can be utilized for the benefit of medicine, the results of theoretical chemistry have not as yet become of much distinct importance for therapeutics. In the first half of the 19th century

[1] Address delivered before the Section on Therapeutics and Pharmacology at the International Congress of Arts and Science at St. Louis, Sept. 1904.

distinguished chemists occupied themselves with the laws of matter independent of biological processes. Various chemical and physical theories followed each other, and the theories propounded by Dumas, Gerhard, Williamson, and Kekulé eventually developed into van t'Hoff's stereochemistry, and in the physio-chemical researches. But these discoveries, though made outside the limits of biology, came to be of great importance to medicine when medical chemistry, fostered both by chemists and physicians, began its growth.

In the beginning of the century theoretical views in regard to drugs had to contend in part with the philosophical tendencies of those times, in part with the ill success which formerly attended the jatro-chemical and physio-chemical schools of physicians. Progress in the application of therapeutical measures was left to pure empiricism, and the view was accepted that what applied to food would also do for medicine; for we became acquainted with the use of coffee, tea, chocolate, potatoes, etc., not through theory, but simply through empiricism. This standpoint could be justified all the more because many important remedies, such as quinine, arsenic, and Peruvian balsam (which last substance has almost led to the disappearance of a contagious disease similar to leprosy in its terrible forms) became available to humanity purely through empiricism and not as the result of scientific investigations. Similarly, balneotherapy is of empiric origin; only recently, owing to the physiological researches of Winternitz and others and the application of physical chemistry, has it assumed the dignity of a separate branch of science. In consequence of a false point of view and empiricism the creative ideas of a Paracelsus were forgotten.

The progress in the chemistry of organic substances offered an opportunity to combine chemical and medical research, especially in the province of therapeutics.

I myself have had the pleasure of seeing that by this coöperation of medicine with organic chemistry an impulse has been given to therapeutics, which, in spite of a certain opposition, cannot again disappear from the sphere of research, an opinion which was held and expressed on the part of chemistry by the late A. W. von Hoffmann.

A good example is furnished by chloral, a drug formerly belonging to the chemical rarities, because Liebig's method of production provided no means of obtaining sufficient quantities for experimental medical research. This body was known as a chemical substance as early as 1832, but its intrinsic therapeutic value was not discovered until the year 1868. It is in America more than anywhere else that these investigations have received the fullest appreciation. The use of chloral hydrate was based upon the idea that when taken up into the blood a splitting off of chloroform takes place, as is the case outside the organism in the presence of all alkalies. This point has been the subject of much controversy. There can be absolutely no doubt that whenever chloral has had no soporific effect, a considerable quantity of urochloralic acid can be found in the urine, which must be traced back to the chloral. It is equally certain, however, that small quantities of urochloralic acid always are to be found in the urine after the administration of chloral. But it is just as true that the main therapeutic effect depends on the formation of chloroform. Only those who consider these principles will, as is shown by clinical experience, be able to observe chloral in the full unfolding of its effect. Shortly after its effect had become known the Glasgow clinician, Russel, proved that in conditions of excitement in typhoid fever, owing to the marked increase of the alkalinity of the tissues, small doses of chloral hydrate through their decomposition manifest the same effect as that produced only by large doses in similar conditions in other diseases. On the other hand, in gout the opposite happens. Even large doses do not produce the desired effect, since alkali is lacking for the decomposition.

But we cannot judge of all organic bodies from the standpoint of decomposition. Many take up substances from the organism, and since the discovery that benzoic acid becomes hippuric acid, and salicylic acid changes to salicyluric acid, it has been proved that the opposite of decomposition takes place with a number of drugs. Furthermore, it does not seem impossible that many substances unite with the disease-products formed in the organism. This hypothesis may be supported by the fact that the system itse

produces an acid, such as glycuronic acid, which carries off foreign substances from the organism, such as camphor, phenol, etc., in the form of a double combination.

Since the time that chloral came into use organic bodies have been particularly investigated. Owing to the tremendous amount of material there has been a tendency to place reliance upon the chemical composition in making a choice, and it has been assumed that the chemical constitution stands in a certain relation to the action of a drug. Many experiments have been made in this direction. We do not wish to deny that such an influence occasionally exists; at any rate, we see that when the action of a given substance is known changes in the molecule will produce a difference in action, and that by the introduction of certain groups, certain definite changes in the effect may be expected. Among this group of bodies is antipyrin, in which changes in the side-chains leave the nature of the effect pretty much the same, even though new therapeutic advantages are obtained, as is best seen in pyramidon. A similar example is offered by veronal, lately suggested by E. Fischer as a soporific.

But it is as yet impossible to predict the effect of a chemical body from its constitution, unless a decomposition-product of known action is formed, as in the case of chloral hydrate, or unless an active and well-known nucleus forms the basis of the substance. There are, of course, examples which point to the connection between constitution and effect, such as the difference between the action of bi- and trichlorinated aliphatic combinations. The trichlorinated bodies have a lethal influence on the heart; the bichlorinated bodies, such as chloride of ethyliden, only on the medulla oblongata. If trichlorinated butylaldehyde (butylchloral) be administered to an animal only an effect on the medulla oblongata is produced, in spite of the triple chlorination. The reason of this is that allylchloroform is formed in the organism, which, not being stable, splits up into dichlorallylen, which is a bichlorinated body.

Owing to the progress in chemistry medical science has been enabled to determine the relation which certain new drugs, by reason of their composition, bear to other established remedies of known constitution. This has been demonstrated by Gaetano Vinci in eucaine, whose composition is analogous to that of cocaine. Eucaine is a drug which is truly fitted to replace cocaine on account of its slighter poisonous nature, especially in the form of its lactic acid salt.

It has frequently been assumed that certain atomic groups in the molecule are the bearers of a special action, and that accordingly the bodies of a chemical series must exhibit a similar effect. That is, however, by no means the case, for even formic acid and acetic acid manifest markedly different biological properties. In alcohols the theory is founded on the presence of a certain chemical group, which is spoken of as the alcohol group. But we see this group appearing threefold in glycerin, and yet no physiological connection between the effect of common alcohol and of glycerin can be established.

In general we must confess, however, that we cannot as yet speak of a relation between constitution and effect, because what we call effect must be regarded as an influence on the different functions. Even if we consider the apparently so simple mechanism of sleep, we must remember that it may be induced by an influence on the brain, or equally as well by an action on the periphery. We cannot here enter into a physiological analysis of the processes taking place in the organism, but as the above example shows, the most diverse parts of the system may be affected, so as to produce a similar result. Moreover the different hypnotics, although fulfilling the same purpose, have an entirely different composition. On the other hand, when investigating the action of chemical substances we may always expect new results to become manifest by chance, for when Baumann was studying the effects of sulfonal it had never occurred to him that this body might possess soporific powers. We can best see the prominent part played here by chance in the introduction of salicylic acid into therapeutics. After Kolbe had succeeded in synthetically producing this acid, which is normally contained in the bark of the willow, he thought that it would exhibit disinfecting properties within the system by its decomposition. This decomposition does not, however, occur.

Yet Kolbe's idea has led to the clinical application of this substance, and the valuable results obtained by Stricker from the use of salicylic acid in acute articular rheumatism, although it is not by any means a specific, have stimulated to continuous researches, most fertile for therapeutics, upon the various salicylic preparations.

It is not impossible that, starting from this small therapeutic field, the indications for the use of salicylic preparations may be greatly extended.

Even though the constitution of a chemical body gives us no firm basis for pharmacodynamic investigations, we can yet derive the most varied hypotheses from it. In pharmacodynamic research we may uphold the same principle which Claude Bernard expresses, namely, that by promulgating a hypothesis we are led on to experimental research, the solution of which may be of the greatest importance. G. Gore expresses his opinion in much the same way:

"A discoverer is a tester of scientific ideas; he must not only be able to imagine likely hypotheses, and to select suitable ones for investigation, but, as hypotheses may be true or untrue, he must also be competent to invent appropriate experiments for testing them, and to devise the requisite apparatus and arrangements."

The science of therapeutics quite properly does not follow a one-sided course, but seeks aid in all directions, and since the results of the exact natural sciences are not yet ripe to guide us clearly, we must take into consideration what has been gained by practical experience, for it would be a false principle to condemn popular medicines without examination. At the beginning of this lecture the successful application of digitalis was already mentioned.

And here we must not entirely neglect the historical side of empiric observation. Frequently even the most absurd practices are based upon theory. When we turn away in disgust from the unclean excretory products of animals used in ancient times and by Asiatic nations, which we now regard as the very outcome of folly, we cannot ignore the fact that even this practice was founded on theory, though a false one. This is proved by Pliny, who tells us that animals eat and digest plants, but the medicinal part is not absorbed by the organism, but excreted, for which reason the feces contain substances curing human ills. These prejudices remained for centuries, as is proved by Paulini's book, published in 1697, but which can now be read only with disgust.

Such excretions as musk and castoreum, which are undoubtedly of value, should by no means be rejected. But particularly the 19th century has directed attention to the question, whether the products of the organs themselves, or certain substances contained therein, might not be employed as remedies.

It was no easy task for Brown-Sequard to prove that the principles contained in the testicle of animals exercise a stimulating and exciting influence on the system. The discovery of spermin crystals, their occurrence in various organs, and the decidedly stimulating effect produced by these substances, reminded physicians that creatin, which had already been obtained from meat extract, had an effect similar to that produced by the salts of potassium on the animal body. This, as we may say, weak connecting link yet led to the further development of a principle in therapeutics. Medical chemistry has already succeeded in obtaining from the organism substances which may be of the greatest importance for therapeutics. You all know the effect of thyreoidin on the system. Obviously the active principles here are albuminoid bodies, the peculiarity of which has already been partly explained by Baumann in that iodine is one of their component parts. Probably no one would have imagined that this element must be regarded as one of the constituents of the human organism.

The very much studied question of the constitution of albumen will naturally lead to a more exact knowledge of the different kinds of albumen which are of value therapeutically and open a new field of observation to pharmacology.

The most surprising feature in the action of substances of the organs is presented by the constituent of the suprarenal capsule, adrenalin, not an albuminoid body, it is true. In order to better illustrate the importance of the new domain, the following pharmacodynamic

experiment may be mentioned. Doses of cocaine which are absolutely fatal to animals are easily borne in the presence of adrenalin without any injurious effect whatsoever. These substances, as they are found in the body of animals, are certainly of importance for the life-processes themselves. Taken from the animal body, they have the same effect as the human product, and can thus be employed as curative agents in man.

But medical chemistry had already undertaken researches which were not indeed utilized therapeutically at once, but came to exert great influence on therapeutics. In 1869 Zuelzer and Sonnenschein proved that alkaloidal bodies may be formed by the decomposition of the organic substances of the organism, and later on the theory of toxins was derived from this observation. This again has led to von Behring's remarkable and far-reaching theory of the anti-bodies formed in the organism.

How to make the substances obtained from the bodies of animals useful for therapeutics, depends upon the state of our physiological and chemical knowledge, and especially on the train of ideas arising in connection with these subjects. This can be seen, for example, in the case of the esters of cholesterin, the composition of which was already discovered by Berthelot, but not in connection with biological investigations. On the other hand, cholesterin esters had been observed in the form of wool-fat, and the impure product was used medically and cosmetically even in ancient times for its curative powers. It was proved that a functional significance as regards the animal organism must be attributed to cholesterin esters, for they are present in mammals, birds, and all creatures whose external surface is of keratinous character. They give lustre to the skin, but act chiefly, so to say, as a protective varnish. The white substance of newborn children is therefore very properly termed cheesy varnish (vernix caseosa). It was formerly thought to consist of glycerin fat, but it is actually composed of cholesterin esters. The higher members of these esters are characterized by the physiological properties of wax. Gottstein has shown that this substance offers no food for microbes, is very stable, difficult to saponify, and not decomposed by the oxygen of the air, as are other fats. Thus it forms a protective matter, especially effective by reason of its waxy nature, and this has led to the production and application of therapeutic substances similar to cholesterin ester, as, for example, fetron.

The influence of pathological anatomy on therapeutics belongs entirely to the 19th century. To John Hunter in England and Bichat in France belongs the credit of freeing pathological anatomy from the brainless descriptive scientists, and of forming it into the necessary basis for every form of progress in therapeutics. From this time until Virchow's labors, the decisive importance of which is recognized impartially by all nations, pathological anatomy has exercised a great influence upon medical activity. Cellular pathology especially, in spite of all former battles and present attacks, will form the basis of every experimental and therapeutic observation, though some of the views concerning it may undergo modification through the progress of science, and opinions which Virchow himself could not accept may be brought forward again. The scientific question which appeared as a result of cellular pathology is the question of the cause and symptomatology of disease. Nothing can be more suitable in treating this question than to quote Virchow's own words:

"An elementary pathological process in the sense of cellular pathology appears thus: an external influence acts upon a living cell and alters it in a mechanical or chemical way. The external influence is the *causa externa,* or as we simply express it, *the cause of disease:* the altered condition is called passio, disease. If now, in consequence of the change undergone, an action (actio s. reactio) takes place in the living cell, this change is called a *state or irritation* (irritamentum), and the cause of disease irritants. If, on the other hand, no action ensues, if the condition is limited to the change "suffered" by the cell, we have to do with a mere disturbance (laesio) or *paralysis.* Since, however, the same cause can evoke irritation in one cell, merely a disturbance in another, and even paralysis in a third, we assume a certain difference of the internal arrangement to be the cause

of this varying behavior. Thus we come to the internal cause or predisposition."

But these words spoken in 1880 must be modified according to present experience. According to Virchow the causa externa is the cause of disease. The irritant acting upon the organism is *under all circumstances* the morbific factor according to this assumption. We do not wish to play with words. If, indeed, this foreign intruding agent produces a destruction of the cell power or a morbid modification of it, it obviously must be regarded as the actual cause of disease. But when, for instance, we see that the invading body produces only an entirely local irritation, or, although capable of reproduction, as is the case with bacteria, no proliferation occurs, it becomes difficult to consider the same factor as the cause of disease in all instances. Virchow terms this phenomenon of indolence of the cell toward the intruder a want of predisposition; according to the school of bacteriologists, however, the cell is not a culture medium in the given case. We see from this explanation that Virchow himself assumes the cell power to be variable, and we can quite logically and correctly say that by the term disease, *i.e.*, nosos, is designated that condition in which the external irritation can accomplish the defeat of the cell.

Von Hansemann has shown from a pathological and anatomical point of view that in cases of diabetes mellitus and other diseases the tubercle bacillus involves secondarily the lung. Von Hansemann calls this disposition, but we must certainly first of all term it nosos, since it is a question of proved deviation from the normal.

This can also be illustrated by experiments. In a frog anthrax bacteria do not proliferate. As soon, however, as we place the animal in an incubator, *i.e.*, weaken the cell power by heat, we are able to make the animal susceptible to the inoculation of anthrax. In this case the parasite is only a parasite of the diseased cell, and this kind of infection I have termed nosoparasitism. Thus we must describe as "nosos" the molecular change which we can no more observe through the microscope than we can the course of a chemical reaction, the outcome of which we judge only by the result.

The cell is subject to the same vital fluctuations as Brown has assumed for the organism. Brownonian theory has had no special value for practice, it is true, because at that time it was impossible to base a system of therapeutics on these observations so as to be of practical use. But it must be acknowledged that his theoretical deductions can be applied to the vitality of the cell. This theoretical explanation is under all circumstances of decisive importance for therapeutics, and already physicians are beginning to direct attention to this view in the study of therapeutics. Thus A. Menzer says: "The solution I have attempted to give to the question of the etiology of acute articular rheumatism is derived from the theory of a correctly interpreted nosoparasiticism."

This question has grown to be of special importance for pulmonary phthisis. We cannot here enter into the subject of infection by tubercle bacilli; only one thing is certain, namely, that the bacillus is destroyed if the cells become healthy and only does harm when the cells are diseased. Even before the discovery of the tubercle bacillus this fact was proved by dietetic and open-air cures, as described in the excellent work of the two Doctors Williams, father and son, and Freund again has shown lately that the functions of the tissue of the lungs are impaired by abnormal immobilization of the first rib, and that then the tubercle bacillus can begin its work.

At the present day pharmacodynamics teaches that there are indeed drugs which do not merely act specifically upon a tissue, as phosphorus acts upon the formation of bone, but that there are also cell excitants, such as cantharidin, which, without themselves having any effect on the bacteria, can bring about the cure of diseased tissues, so that the nosoparasitic bacilli are destroyed.

But here begins a branch of science which, like the theory of immunity and serum-therapy, occupied the end of the 19th century, and the waves of discussion still run so high that it is as yet unsuitable for a historical survey. It is sufficient to say that all the investigations of the present as well as of the past century afford us a guarantee that we are following the right road of progress in thera-

peutics, and assure us that in regard to the healing of disease there lie before us unlimited possibilities, to use the apt phrase which has been already employed in regard to the development of your country, by Ludwig Max Goldberger, "Das Land der unbegränzten Moeglichkeiten."

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*THE EFFECT UPON EDEMA OF ELATERIUM IN NON-PURGATIVE DOSES.**

By Henry Sewall, Ph.D., M.D.,
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While the clinician is, from the very nature of his material, for the most part debarred from the field of scientific experiment, nevertheless the facts developed in bedside study may often suggest a line of research to the laboratory worker. The few observations upon which the following paper is based will have a scientific value, if at all, in some future experimental demonstration of the hypothesis suggested by them.

Nothing is more curious in the history of that ancient and interesting drug elaterium than the paucity of published clinical, not to say experimental, studies on its mode of action.

Drugs which produce watery catharsis have taken on new interest in the light of recent researches upon osmosis and the physiology of lymph formation. A reference to the recent Harrington lectures on edema by Meltzer[1] will put any student at once in a position to weigh all current views of the subject from a critical standpoint.

It is ordinarily assumed, I think, that a cathartic drug given by mouth produces its effect through direct action upon the mucous membrane of the bowel. Brunton[2] in his review of the pharmacology of catharsis appears to support this view.

Cushny states:[3] "The action of the purgatives is generally considered purely local, and strictly analogous to that of the skin-irritants." Then, after considering certain exceptions: "Few of the purgatives have any appreciable action after absorption, but general effects may be produced indirectly from their intestinal action."

As long ago as 1857 Claude Bernard demonstrated that subcutaneous or intravenous injections of solutions of sodium sulphate caused purgation.[4] And lately J. B. MacCallum,[5] after renewed investigation of the physiological action of saline cathartics, finds that "all those salts which act as purgatives when introduced into the stomach or intestine have the same action when injected subcutaneously or intravenously." MacCallum found that, in rabbits, increased peristalsis could be caused by intravenous injection of salines within one minute which, were the salt thrown directly into the intestine, would only occur after ten to fifteen minutes, and with a dose five times the amount to produce an equal effect. "This seems to indicate," says MacCallum, "that even when these salts are introduced into the intestine they must be absorbed into the blood before they can produce their purgative effect, and that they affect the intestine by increasing the irritability of the nerves and muscles, as Loeb has suggested."

The problem of the pharmacology of cathartic drugs seems to fall naturally into two groups: First, what are the mechanisms involved? Secondly, what are their modes of action? The first question chiefly concerns us in this paper, and I venture to indicate the following obvious possibilities: (1) Cathartics, without being absorbed, may act only locally upon the surface of the intestinal epithelium, and the effects produced may or not involve reflex actions of the nervous system. (According to H. C. Wood,[6] previous section of the par vagum prevents the action of purgatives.) (2) Cathartics may exert their specific irritation only or chiefly during their passage

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*A paper read before the Section of Medicine of the International Congress of Science and Art, St. Louis, Sept. 23, 1904.

[1]Edema. By S. J. Meltzer, *American Medicine*, July 2, 1904, *et seq.*

[2]Pharmacology, Therapeutics, and Materia Medica, 1888, p. 390.

[3]Cushny: Pharmacology and Therapeutics, 1901, p. 94.

[4]Quoted by MacCallum, *infra.*

[5]J. B. MacCallum: "On the action of saline purgatives in rabbits, and the counteraction of their effect by calcium." *University of California Publications*, July 10, 1904.

[6]H. C. Wood: *American Journal of the Medical Sciences*, 1870, vol. lx, p. 75.

through the intestinal wall (*a*) during absorption, or (*b*) during excretion, and, in either case, by direct contact with appropriate tissues or reflexly through the nervous system. (3) Cathartics may act only after absorption into the general circulation, and on tissues other than those in the intestinal wall, especially, probably, the systemic capillaries.

Of quite another character appear to be the questions involving the mode of action of cathartics—whether, *e.g.*, induced diarrhea is due to increased secretion or only to retarded absorption and more vigorous peristalsis. Or the much deeper questions involved in the discrimination of the parts played, respectively, by osmosis and vital secretion (to beg a question) in catharsis.

It is probably the prevailing opinion that so-called "hydragogue" cathartics produce their watery flux solely through direct action upon the intestinal wall, and that the drying of the tissues and the absorption of dropsical effusions is a secondary and passive result in the systemic capillaries of increased density or dryness of the blood occasioned in the intestinal circulation. But it is open to conjecture that cathartic action *begins* with accelerated absorption in the systemic capillaries, leading to increased blood-pressure and lowered specific gravity of the blood, and that increased diuresis and intestinal flux and peristalsis are later links in the chain of circumstances. Indeed, my own clinical observations upon elaterium seem most readily explained by a hypothesis founded upon such a course of events. The hypothesis may be stated in advance as follows: *Elaterium has the power of causing the absorption of dropsical effusions irrespective of the loss of watery fluid from the blood to the bowel.* The proof of this statement is made more difficult, but its soundness is by no means impaired, by the common experience that the pharmacological measure which relieves dropsies usually causes diarrhea as well; nor is it here disputed that edematous fluid usually finds its principal avenue of escape from the body in the intestine.

It is unfortunate that my observations were made with the use of Clutterbuck's elaterium rather than with elaterin, the active principle of the drug.

The dosage employed varied according as the object sought was purgation or absorption of effusions without disturbance of the bowels.

In the first case results were obtained by the method advised by the elder Flint.[7] About one-tenth grain of elaterium was given by mouth every hour until nausea supervened or the bowels began to move. The number of doses effective on this basis varied between three and eight. In the second case the drug was administered frequently for several weeks continuously in doses of one-sixteenth to one-eighth grain given from one to three times daily. It usually happened that after a longer or shorter time nausea was produced. Upon this event the drug was at once stopped, or sufficiently reduced in amount to relieve the nausea. I never saw anything approaching prostration produced by the drug. These observations were mostly carried on at the Arapahoe, now the Denver, County Hospital of Denver.

My attention was first especially attracted to the properties of elaterium thirteen years ago, by reason of its happy action in the case of a man sixty-nine years of age, who suffered from great swelling of the legs, marked breathlessness, and other symptoms, chiefly dependent upon dilatation and probable degeneration of the heart muscle. On two or three successive days a small amount, 3/32 grain, of elaterium was ordered to be given hourly, not to exceed six doses. No effect was thus produced upon the dropsy or general symptoms. The drug was then ordered to be given every hour until nausea was produced or the bowels began to move. Eight doses were thus given during the latter part of one day. The next morning all signs of effusion had disappeared from the patient's legs, and his painful subjective symptoms were found to be completely relieved. The nurses in attendance certified that the patient's bowels had not moved more freely after the last series of elaterium doses than on previous days. The quantity of urine passed was, unfortunately, not recorded. This patient had formerly been treated with digitalis, ca-

[7] Flint: Practice of Medicine, 1886, pp. 872, 892, etc.

thartics, and diuretics with alternate improvement and relapse. After the effective dosage of elaterium he kept well during the remaining month of his stay in the hospital, receiving, it is true, digitalis and iron, which had, however, previously been of no great help.

The striking feature of this case was the suddenness of the disappearance of a large dropsical accumulation under a dosage of elaterium but little greater than that which had been previously ineffective. It looks as if there had been a cumulative action of the drug for several days. As the bowels were reported not to have moved excessively during the disappearance of the effusion, it is probable that the fluid made its escape chiefly through the kidneys, as in the following case:

A pale, slender girl about twelve years of age had long suffered from uncompensated mitral regurgitation, chiefly evidenced by extraordinary ascites and edema of the legs. Ordinary therapeutic measures were applied, with varying but diminishing success. A dosage of elaterium representing one-sixteenth of a grain two or three times a day was given without apparent effect for a period of several weeks. Suddenly the child developed moderate fever, she suffered difficulty in breathing, and it seemed as if dissolution from heart-strain were imminent. The clinical picture was suggestive of that presented by a patient succumbing to sudden loss of compensation accompanying a mitral stenosis. I had been quite familiar with the physical signs in this case, and I now found that with this attack there was a considerable increase in the area of heart dulness to the right of the sternum, and the heart was labored and very vigorous in its action. There was no sign of pericardial effusion. Within a single night the dropsy nearly completely disappeared, and in the morning the patient was, from her own standpoint, quite well again. The child's mother certified that diminution of the dropsy was accompanied by no unusual movements of the bowels, but that the patient had passed an extraordinary amount of urine during the night.

The study of this case convinced me that through some agency there had been suddenly set up an extraordinary activity of the absorbing mechanisms through which, on the one hand, the lymph spaces had been drained, and on the other the blood-vessels had been surcharged with a watery fluid, causing the heart to stagger under an unwonted load, which would no doubt have overwhelmed it had not the increased blood-pressure found a safety-valve through the kidneys. The fever accompanying the clinical crisis may possibly have been due to sudden flooding of the circulation with toxins dissolved in the dropsical fluid. Similarly I have observed uremic symptoms, as headache and nausea, make their appearance with the sudden absorption of an ascitic effusion in Bright's disease.

After an interval of many months, practically the same clinical history was repeated in this child, following the administration of elaterium for a period of several weeks. Though other drugs were given coincidentally with elaterium, through a process of exclusion there can be little doubt that the extraordinary results were due to the latter agent.

I have notes on twenty cases treated with elaterium for edema of various origins. In all but the relatively vigorous patients the drug was given in doses of but one-tenth grain from one to three times a day, and it was discontinued with the advent of nausea.

After a few days of such treatment a tuberculous patient suddenly lost a scrotal effusion, and in another edema of the feet disappeared. Out of twenty recorded cases elaterium disagreed—*i.e.*, produced nausea, or rarely griping—in about one-half. In most instances the diminution of dropsical accumulations under its influence was attended with purgation, and such cases are not available in this discussion. It may be remarked parenthetically that the favorable results secured through the use of elaterium supported by appropriate other treatment were of strikingly durable character.

To sum up the evidence offered in this paper:

1. The facts here presented seem most easily explained by assuming that elaterium, aside from its action on excretory functions of bowels and kidneys, directly excites absorption of fluid from the tissue spaces. Whether this effect is brought about by sudden increase of osmotic pres-

sure of the blood or through some specific stimulation of the capillary epithelia through which endosmosis is accelerated, is a question for definite investigation.

2. The action of elaterium seems to be "cumulative" over considerable intervals of time. One or two small doses daily may finally produce a physiological effect or give rise to intolerance.

3. The drug may appropriately be used in most cases of edema, barring those in which there is a tendency toward enteritis.

4. If it is attempted to obtain therapeutic results without inducing nausea or griping, as in the observations recorded above, elaterium will be found irregular and unreliable in its action. Possibly better results would follow the use of its active principle elaterin.

THE TREATMENT OF PULMONARY HEMORRHAGE.

In the *Medical Record* of September 17, 1904, McLAUGHLIN states that it is the duty of the physician to adopt those measures which will assist in the formation of a clot as promptly as possible, and to prevent the dislodgment of the clot, once formed, until sufficient time has elapsed for the eroded vessel to become permanently occluded.

To meet these indications one must decrease the reflex irritability of the lung tissue, and limit the respiratory excursions of the side from which the hemorrhage is coming. The reflex irritability may be controlled by many drugs, among which the bromides and chloral are in high repute. The author's preference is for opium, as it is not only without a peer as a cough controller, but it lessens tissue metabolism, renders less oxygen necessary, and so reduces the amount of work which the lung has to do. In comparison with these advantages the theoretical disadvantage of raising the arterial tension is not to be considered.

To limit the respiratory excursions there is no measure more efficient than strapping the side of the chest from which the hemorrhage is coming. The adhesive straps should be applied with considerable pressure during forced expiration, and should cover the entire half of the chest from the axillary fold to the lower costal margin, the same rules which govern the application of straps in fracture of the rib governing here.

The advantages of this method are:

1. It favors the formation of a clot around the bleeding point, thus assisting in the prompt control of the hemorrhage.

2. It prevents the clot from becoming loosened or dislodged, thus preventing the recurrence of a hemorrhage once controlled.

3. The clot in lieu of being formed in lung tissue which is on the stretch is formed in lung tissue which is relaxed; it follows, therefore, that there is less interference with the general nutrition of the lung, and less likelihood that the existing hemorrhagic infiltration will be followed by septic processes in the lung itself.

4. Upon removal of the straps the expansion of that side of the chest, and the consequent expansion of the air vessels of the contained lung, will loosen up and favor the expulsion of any clots which may remain in the lung.

The question as to whether this method would increase or decrease the danger of inundating the bronchi with blood is one which only experience can decide. While it is undoubtedly true that opium by decreasing the general reflex irritability would tend to allow the accumulation of blood, the same cannot be said of this procedure. The decreased movement would, to a certain extent, favor its occurrence on the side from which the hemorrhage was coming, but this usually occurs anyway; *per contra,* the increased respiratory excursions of the unstrapped side would favor the expulsion of any blood which might enter the bronchi of that side.

The author's routine treatment has been as follows: Immediately upon the occurrence of the hemorrhage the patient is given a hypodermic injection of 1/100 grain nitroglycerin and ¼ grain morphine. The adhesive straps are then applied to the side of the chest from which the hemorrhage is coming, and the patient is instructed to lie upon that side. Six hours after, if the hemorrhage has ceased, the patient is moved out to a summer-house (a building with no sides, and which is practically out-of-doors). At the end of four days the straps are removed, and the patient is given a week of rest cure in the open.

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Leading Articles.

PHYSIOLOGICAL SALT SOLUTION.

It is an interesting and remarkable fact in connection with therapeutics that the profession in many instances discovers more or less competent methods of treating disease before it has knowledge of the physiological or pathological conditions which underlie the state presented to the clinician. A few years ago we knew little more about the blood than that it contained various forms of corpuscles, that it possessed certain ingredients which resulted in coagulation, and that its coloring matter was hemoglobin. Within the last few years we have learned much concerning the relationship of the constitution of the blood plasma to the blood-vessel walls and surrounding tissues, and we have learned that changes in the blood serum are very much more important, from a pathological standpoint, than changes in the corpuscles themselves. Under the leadership of Ehrlich and a host of other investigators who have worked along similar lines, it has been shown that the blood plasma contains a multitude of other powers heretofore far beyond our knowledge, and the old conception of the blood as a vital fluid possesses a new meaning to the modern physiologist.

At about the time that we began to obtain a better conception of the physiology of the blood plasma, the employment of so-called physiological salt solutions by hypodermic injection, or intravenously, began to be popular, and these solutions are now kept in almost every well appointed hospital for the support of the circulation in dangerous operations, and for the dilution and elimination of poisons in a number of toxic conditions. Those physicians and surgeons who in their early days had an adequate training in physiological laboratories recognized from the first that it was essential that these solutions should be carefully prepared, and that the quantity of saline material which they contain ought to be exact, while others in the profession who did not receive such training not infrequently have been content to employ solutions the ingredients of which varied very greatly at times, and as a consequence often failed to get good results and sometimes met with evil effects. In the past many physicians have considered that the normal salt solution, so-called, which has been used for years in the physiological laboratory, when experimenting upon the circulation of the frog, in the strength of 0.6 per cent, was also a normal salt solution for human beings, when, as a matter of fact, a solution very much stronger than this is correct, and it may be stated as a fact that 0.9 per cent is approximately that which should be employed when salt solutions are used for mankind. Again, our increasing knowledge in regard to the constituents of the blood serum and its relationship to adjacent tissues has proved that the mere use of salt and water alone is not sufficient, if the best results are to be obtained, since such a solution lacks certain ingredients which are necessary for normal physiological function in the circulatory apparatus.

Our attention has been called once more to this important matter by a valuable article contributed by Dr. Frank S. Mathews to the *Annals of Surgery* for August, 1904. As he well says, it needs

no argument to show that a fluid should be used which will not interfere with the performance of the blood's function nor injure the body cells, and he quotes the well known physiological fact that if a saline solution which is too concentrated is employed the red cells shrink, while if it is too dilute they first swell and then part with their hemoglobin, and that these changes are the result of osmosis. He found that when blood is mixed with .9-per-cent saline solution, the corpuscles remain normal; when .6 per cent is employed, they swell and lose some of their hemoglobin; and when .5-per-cent solution is used, the corpuscles are destroyed. Yet how many surgeons who employ salt solutions at the present day recognize that these differences in concentration may make the difference of saving the life of the blood or destroying it. He then quotes Cushing, of Baltimore, who found that when a .6-per-cent solution was passed through the blood-vessels of a frog, the muscles of its legs lost their irritability sooner than if no circulation had been maintained.

Many years ago in Ludwig's laboratory in Leipsic the writer of this editorial performed experiments along these lines both on frogs and warm-blooded animals, and the changes which took place in the vitality of the muscles supplied by varying strengths of salt solution were remarkable, not only as to function but as to the anatomical states, for if weak solutions were circulated the muscle fibers became pale and exceedingly swollen, while if stronger ones were employed they became shrunken through the extraction of fluid.

It being evident, therefore, that an absolutely correct percentage is essential if salt solutions are to be employed, we may pass on to a consideration of the various salts, in addition to sodium chloride, which are necessary. Many years ago Dr. Sydney Ringer in London found by accident, and proved by careful experiment, that a small quantity of calcium was essential to the satisfactory use of a sodium chloride solution. Later than this Loeb, Howell, Locke, and others have shown, with Ringer, that calcium and potassium are both essential, and Howell has concluded that the sodium maintains the proper osmotic relations between the cells and the fluid, that the calcium is a stimulating agent to the heart and muscle, and that potassium is essential to its rhythmical contraction and relaxation.

For these reasons we earnestly plead with surgeons and physicians that they shall not be content to employ salt solutions prepared by haphazard methods. It is vitally important that these solutions shall be most accurately prepared, not only because they will fail to be of benefit if they are carelessly used, but also because the physician may do actual damage and impair his patient's chances of recovery if such care is not followed.

In addition to the effects which may be exercised upon the blood and its serum, it is interesting to note that Brown has shown that the use of pure sodium chloride solutions is not infrequently followed by glycosuria, whereas if calcium is added to the solution such a leakage of sugar does not take place. The old rule, therefore, that the normal salt solution may be made by adding a teaspoonful of common salt to a pint of water ought never to be followed if it can be avoided. Mathews also believes, and we heartily agree with him, that when large quantities of fluid are used in the peritoneal cavity, calcium and potassium should be present in addition to sodium chloride in normal quantities.

Several years ago we suggested to the largest manufacturers of preparations for physicians that they should place upon the market a concentrated saline solution containing the ingredients recommended by Ringer as modified by Dr. Locke. This was done, and at the present time it is possible for every physician and surgeon to have in his surgical kit bottles of this fluid, from which the so-called physiological salt solution can be instantly prepared of such a strength as to be capable of doing good and incapable of doing harm. We urge our readers, therefore, to bear in mind the fact that an incorrectly prepared salt solution is capable of doing more damage to a patient than the use of active drugs which are manifestly of uncertain constitution.

THE VALUE OF TUBERCULIN.

On several occasions during the past three years we have printed in the editorial columns of the THERAPEUTIC GAZETTE

our views in regard to this important matter, and have at other times printed in our original pages articles which have invariably strongly supported the employment of tuberculin, both as a diagnostic and therapeutic agent. Our own editorials have been guarded, and in one sense antagonistic to its use on the part of the general practitioner. There can be no doubt that in the great majority of cases of tuberculosis it is possible by careful watching and careful physical examination to reach a positive diagnosis that a patient has or has not this type of affection without relying upon the injection of tuberculin. Most of those who have used this substance, to a sufficient degree to be considered experts in its employment, admit that it is an agent of very great power, that it must be used with caution, and that there are fallacies connected with its use. In other words, no physician has a right because a patient reacts after injecting tuberculin to state positively that he has tuberculosis, nor is he correct in stating positively, upon this basis alone, when no reaction occurs, that the patient is absolutely free from tubercular disease.

Amongst those who have advocated within certain lines the employment of tuberculin, both as a diagnostic and therapeutic agent, there is no one who deserves and receives the confidence of the profession more than Dr. E. L. Trudeau, of Saranac Lake, who has not only based his views upon a large clinical experience, but has had them indorsed by his experimental researches.

In the *Journal of Medical Research* for August, 1904, Dr. Trudeau writes a paper, with the assistance of Dr. Baldwin and Dr. Kinghorn, upon the subject of "Tuberculin Reaction." These gentlemen have investigated several important points concerning the influence of this substance. First, the effect of tuberculin in spreading the disease. Using rabbits for their investigation, they found that when local tuberculosis in the eye is produced by inoculation, the administration of tuberculin failed to result in any spread of the malady, but on the contrary seemed to exercise a favorable and absorptive influence upon the diseased focus. The number and the methods of their experiments scarcely seem to justify our reaching a positive opinion that the use of tuberculin never spreads the disease, but the results are indicative. We wish that there had been more experiments designed to study the influence of tuberculin upon tuberculosis involving other organs from which it could be more readily disseminated. As some persons have claimed that one of the disadvantages of tuberculin was the danger of its spreading the disease, this line of research is not only most interesting but of great clinical value.

The second point which they endeavored to determine was the effect of removal of a tuberculous focus upon the tuberculin reaction. They found that the extirpation of such a focus was followed by loss of reaction, but their experiments were not sufficiently numerous to make this certain.

In regard to the question, "Is the reaction always dependent upon the presence of specific tubercles?" they reach an affirmative conclusion.

A very interesting point which they have also investigated deals with the question, "How long after infection with tubercle bacilli does susceptibility to reaction begin?" As a result they believe that a period of ten to fifteen days is required, since the mere presence of tubercle bacilli in the body prior to the formation of actual tubercles does not give the reaction.

The fact that these experiments have been carried out upon animals whose natural temperature variations are considerable, and that in some instances the tests were not very numerous, necessitates hesitation in the absolute acceptance of the conclusions reached, but the care with which Dr. Trudeau carries out all his investigations, and his thorough acquaintance with the subject, provides us at the present time with the best information that we have in regard to these very important questions. We hope that time and opportunity will permit a further continuance of this most suggestive line of research.

THE USE OF COPPER SULPHATE FOR PURIFYING DRINKING-WATER.

There is probably no subject of greater interest to the physician and the public at the present time than the methods which can be employed for the purification of large quantities of water which are to be employed for domestic purposes.

Whether the water comes from a well, a cistern, a spring, or a river, there is always a possibility that it may be contaminated by pathogenic germs, and there can be no doubt that the vast majority of cases of typhoid fever and cholera are due to such contamination. The fact that there exists to-day no germ-proof filter which can be employed for the purification of large quantities of water, in the sense that the water will be sterile after it has passed through the filter, forces us to regard with interest the results of a research which has been carried out through many months in the government laboratories in the Department of Agriculture in Washington by Dr. Moore and his assistants. Primarily and chiefly their experiments were directed toward the discovery of an agent which would destroy those minute forms of life which not uncommonly cause a water-supply to be disagreeable and offensive, even if it be not unhealthy. It was essential in this research, as in all others of a similar character, that the substance employed should be incapable of doing harm to fish, to animals, or to the human beings who afterwards drank it, since manifestly it would be improper to introduce any substance which was deleterious. Dr. Moore and his assistants found that the introduction of infinitesimal quantities of copper sulphate served to totally destroy all forms of algæ, and incidentally, because their research was not directed primarily against pathogenic organisms, he also found that copper sulphate in these infinitesimal quantities was capable of destroying the typhoid bacillus. These observations having come to the knowledge of Dr. Martin, the Director of Public Health and Charities in the city of Philadelphia, this official had instituted a series of experiments to control those published in Washington, with results which are in entire accord with the government conclusions, and which are remarkable in more ways than one. Thus, it was found that the introduction of so small a quantity of sulphate of copper as from 1 to 8,000,000 to 1 to 1,000,000 of water totally destroyed typhoid bacilli within a few hours.

The value of this discovery if further research supports it consists not only in the fact that we have at hand a ready means of purifying water and destroying its most common pathogenic organism, but that this purification can be attained by the employment of so small a quantity of sulphate of copper as to make the method cheap, and therefore practical, and also absolutely innocuous so far as human beings are concerned.

It has also been discovered in the bacteriological laboratories of the city of Philadelphia, as indeed it was discovered by Dr. Moore in Washington, that the mere placing of contaminated water in a copper vessel, the interior of which had been well cleaned with sand and acid, also resulted in the destruction of the organism. Thus, if water containing many thousand typhoid bacilli to a cubic centimeter is placed in such a copper vessel, at the end of fifteen minutes the number of organisms is diminished, and this diminution in their numbers is continued until at the end of three hours not a single organism can be found. Whether this result is produced by some infinitesimal quantity of copper or by some unknown electrical condition which the copper may induce is not known.

It is interesting to note that within the last few months this very extraordinary method has been applied to the water-supply of a small town in New Hampshire. The reservoir supplying this town contained about 60,000,000 gallons of water. Twenty-five pounds of copper was placed in a sack, and this was hung over the stern of a rowboat, which was then propelled from one end of the reservoir to the other. A round trip completely dissolved the copper in the bag. Repeated trips of this character made at intervals of 25 feet, until 275 pounds of copper sulphate were dissolved, caused the water to be entirely sterile in a few hours, and it remained so for many days thereafter, notwithstanding the presence of additional water which entered the reservoir to take the place of that which was withdrawn.

As there are no cases of copper poisoning on record from small quantities of this substance, a valuable discovery has been made if further investigations confirm these results. In the meantime no harm but much good can come from the use of copper vessels as water-containers, and in the employment of copper sulphate by the method here described.

ANESTHESIA—USE OF EUCAINE B AND ADRENALIN IN LOCAL ANESTHESIA.

It has been abundantly proven that the addition of adrenalin chloride to solutions of eucaine and cocaine not only intensifies the immediate anesthetic effects of the latter drugs, but greatly prolongs their action, thus making possible the carrying out of elaborate procedures under the use of a comparatively small quantity of injected solution. It should be remembered in this relation that Braun has shown that a comparatively large quantity of cocaine can be introduced into tissues which have been rendered ischemic by adrenalin without risk of a general poisoning from absorption.

Braun has noted that minute quantities of adrenalin have the desired effect, and that if used in too strong solution it is probable that the larger vessels as well as the capillaries will be constricted, and may at a later period give rise to hemorrhage. It is therefore desirable to use solutions which only act on the smaller arteries and capillaries, thus allowing the hemorrhage which occurs in the larger vessels to be detected and permanently guarded against at the time of operation.

In using the infiltration method, Braun advised the addition to 100 cubic centimeters of one-per-cent eucaine beta solution of not more than five drops of 1:1000 adrenalin chloride solution. For injection into the larger nerve trunks he uses a one-per-cent solution of eucaine beta to one cubic centimeter of which is added two minims of adrenalin solution.

The enthusiastic claims made by Braun were abundantly corroborated by Barker, as has been pointed out in these pages. He used adrenalin chloride (P., D. & Co.) so added to a solution of eucaine in normal salt as to make the resultant mixture contain 1/100,000 adrenalin and 1/500 beta eucaine.

Donitz, by injecting a mixture of adrenalin chloride and cocaine into the subdural space, was able to perform in animals most severe operations, and he believes that the combined drugs are safer than either used alone.

The great objection to the application of this method is incident to the fact that there is some difficulty in preventing the decomposition of the adrenalin when it is mixed with other solutions and exposed to light, nor have the solid preparations thus far put upon the market entirely removed this difficulty. However, solutions freshly made up are always to be preferred, and the addition of five minims of adrenalin chloride and one grain of eucaine to the ounce of normal salt solution is readily and quickly accomplished.

POSTOPERATIVE VOMITING.

Exhausting and sometimes fatal postoperative vomiting, much commoner in the days when the anesthetic was administered by the youngest and least experienced house surgeon than now, when it is usually given by an experienced man, still occurs occasionally in spite of every precaution taken against it. For years it has been treated by drugs, the beneficial effect of which is dependent upon the fact that the vomiting is as a rule self-limited, provided the strength of the patient holds out.

White (*Annals of Surgery,* August, 1904) has been led to a more careful study of the subject by two cases resulting fatally, in both of which sepsis was positively excluded. The ingenious theories of autointoxication, lessened cell resistance, atony of the stomach with increased toxicity of its contents and gastric elimination, seem to be corroborated by the capillary hemorrhages found in and beneath the gastric mucous membrane in cases which have resulted fatally. If the theory of these obstinate cases of vomiting thus outlined is sound, lavage should prove a useful remedy, and this has been the case in White's experience.

The stomach is washed out immediately before the antiseptic is stopped and before the patient leaves the table—while he is thoroughly under the anesthetic. A mouth-gag separates the jaws, the head resting upon the occiput. The tube is inserted well back against the pharynx and gently pushed down into the esophagus until the end enters the stomach, usually indicated by a mark eighteen inches from the end of the tube. This varies but slightly. Occasionally there is spasm, which is best overcome by a steady pressure. Salt solution or sterile water is

poured into the funnel held about two feet above the patient, until a pint and a half or two pints have been used. Then the funnel is inverted close to a bucket upon the floor. At the same time the patient's head is rotated toward the right. This process is repeated once or twice until the fluid returns clear.

Although lavage does not abolish post-operative vomiting, it seems to lessen it.

This form of treatment is especially indicated where there has been insufficient time to prepare the patient, where anesthesia lasts an hour or longer, and where before operation the patient has suffered from attacks of nausea and vomiting, and chronic gastritis. It is contraindicated in operations upon young children.

Where obstinate vomiting occurs in spite of lavage, small doses of morphine and heroin are usually efficient, supplemented at times by washing out the stomach with boric acid solution. The most efficient preventive measure, however, is the selection of an experienced man for the administration of the anesthetic.

TOTAL ENUCLEATION OF THE PROSTATE.

To those at all familiar with the prostatic literature of the last years, Freyer's (*Lancet,* July 23, 1904) enthusiastic advocacy of suprapubic enucleation of the prostate gland for affections of the bladder and kidneys incident to obstruction due to enlargement of this gland is sufficiently familiar. He offers a further contribution to the knowledge on this subject by an analysis of 110 cases of total enucleation, and shows how the modern surgeon has been led to this extremely radical procedure by the failure of the various palliative operations, including partial prostatectomy and the galvanocautery under this heading. He has accomplished a permanent relief, and shows a mortality materially better than that following the less radical operation.

This observer points out that the commonly accepted view of the prostate as a single body with a canal tunneled through it in the form of the prostatic urethra is incorrect. There are twin organs, of apparently purely sexual function, the lateral lobes, which, though welded together to form one mass, remain practically as distinct as the testes. Each of the two glandular bodies is enveloped by a strong, thin, fibrous capsule; and it is these capsules that constitute the true capsule of the prostate regarded as a whole.

This capsule extends over the entire organ, except along the anterior and posterior commissures or bridges of tissue that unite the lateral lobes in front of and behind the urethra. This true capsule cannot be removed from the prostatic mass except by dissection. The ejaculatory ducts do not penetrate the capsules of the lobes, but pass forward in the interlobular tissue to open into the urethra.

The prostate is further encased in a second capsule or sheath, formed by the rectovesical fascia. Embedded in this fascia lies the prostatic plexus of veins, most marked in front and on the sides of the prostate.

In most cases the enlargement of the prostate of declining years is adenomatous, numerous encapsulated tumors being found, invariably enclosed within the true capsule, which is pushed before them.

The ideal operation consists of enucleating the enlarged prostate entire in its true capsule out of the enclosing sheath, leaving the urethra with its accompanying structures behind; though the prostatic urethra may be torn partially or even entirely removed with equally good final result.

To accomplish this operation, suprapubic cystotomy is performed, after first thoroughly washing out the bladder with antiseptic lotion. The large catheter which is employed for this washing is left *in situ.* The forefinger of one hand is introduced through the wound. The finger of the other hand is introduced into the rectum to render the prostate prominent in the bladder and to keep it steady. The mucous membrane over the most prominent portion of one lateral lobe or over the so-called middle lobe, if there be but one prominence, is scored through by the sharpened finger-nail, and gradually detached by it from the prominent portion of the prostate in the bladder. This means simply raising of the mucous membrane, immediately beneath which is found the true capsule. Keeping the finger-point in close contact with the

capsule, the enucleation of the prostate out of the enveloping sheath outside the bladder is proceeded with by insinuating the finger-tip in succession behind, outside, and in front of one lateral lobe, thus separating the capsule from the sheath. The finger is then swept in a circular fashion from without inward, in front, and to the inner side of the lobe, detaching this from the urethra, which is felt covering the catheter, and pushed forward toward the symphysis between the lateral lobes. These, as a rule, will have separated along their anterior commissure in the course of the manipulation. The other lobe is attacked and treated in the same manner. The finger is next pushed well downward behind the prostate, and the inferior surface of the gland pulled off the triangular ligament. When the prostate is pulled from within its sheath and separated from the urethra with the finger in the rectum, aided by that in the bladder, it is pushed into the bladder through the opening in the mucous membrane, and is withdrawn by strong forceps through the suprapubic wound. As a rule there is very little bleeding, which is readily controlled by irrigation with hot lotion through the catheter.

A stout drainage-tube is placed in the bladder through the suprapubic wound for a few days. The bladder is irrigated daily with antiseptic lotion through the drainage-tube. No catheter is left in the urethra.

Of 110 cases operated upon by Freyer, the average age was a little over sixty-eight years. The average weight of the prostate removed was 3¼ ounces. Three of the prostates removed had already undergone malignant degeneration; 107 benign cases were successful in all but 10. In no instance did the patient fail to regain the power of voluntary micturition without the aid of the catheter.

There have been no instances of relapse, no contraction at the seat of operation leading to a stricture, and no history of permanent fistula. Considering that in nearly all the cases the urine was septic, and in many cases putrid, but two instances of septicemia are distinctly creditable.

There were 10 deaths in connection with the 107 operations—two from mania after the wounds had practically healed, one from heat-stroke on the tenth day when the patient was convalescent, one from coma due to retention of morbid products of the urine which had set in several days before the operation, one from pneumonia seven days after the operation, one from heart failure six hours after the operation, the patient having been worn out (seventy-four years old) from fifteen years' suffering, one from advanced interstitial nephritis ten days after operation, one suddenly from heart failure twelve days after operation, and two from septicemia 13 to 165 days after operation. The total mortality was about nine per cent, which is less than that from lithotomy in all ages.

Reports on Therapeutic Progress

THE TREATMENT OF ECZEMA.

LASSAR (*Dermatologische Zeitschrift*, Berlin, 1904) states that the simplest conception of eczema—more correctly of the eczemas—is as the reaction of the epidermis-bearing surface against inadequate tissue irritation. As this is manifold in its nature, and the pathological results of irritation are not uniform, the essential unity of the essence of the disease disappears, and with it the possibility of laying down a constant method of treatment. Thus one must inquire as to the cause of every cutaneous inflammation resembling eczema, and adopt a corresponding symptomatic treatment. A carbolic or lysol eczema in a surgeon demands other treatment than the impetiginous eczema of infants evoked by scratching. Eczema may manifest almost every variety of morbid change, and does not follow the customary scheme of redness, papulation, and pustulation, the formal advance of symptoms in regular stages. One observer finds a naturally arising or experimentally induced eczema completely bacteria-free, while others as competent have certainly proved the existence of a bacterially infectious variety. The pathological type, due to chemico-physical traumatisms, rapidly alters under the unavoidable influence of microörganismal contamination. Purely parasitic inflammations (set up by fission fungi) disturb the surface and give rise

to exudations, change the general condition of the tissues, lay bare the previously protected lymph canals, so that various chemical substances from without make their way in. Lymphangitic inflammations ensue, which render the course of eczema so tiresome and its treatment difficult.

The first indication is, in the case of any existing eczema, to inquire carefully into its original character, the one form before infection and the infectious form prior to its further progress, and the tissue disturbances which favor its absence. We need often to search for a long time ere we discover the actual cause of the constant recurrence of the cutaneous inflammation, attributed to a something in the constitution or the blood. For instance, it may be turpentine employed to cleanse brushes by artists, or for other purifying purposes. Lysol or lysoform may be mentioned, which, from their recognized efficacy, have gained a great reputation, yet are borne well by all skins. Other causes are mouth-washes, as odol, or hair-dyes. From such may arise ring-shaped erythema round the mouth, or bands of infiltration on the forehead and temples. By disuse of such articles of daily employment, by the discovery of concealed external irritants, a spontaneous cure frequently results. Aggravation of numerous cases is owing to the patient attempting to treat himself, all the more apt to happen since dermatotherapeutics have passed for the most part into the hands of specialists.

The main indication for special treatment is to preserve the irritated parts from further harm. If the dermatitis is recent —one almost always induced by some external irritant—it is necessary carefully to purify the surface. This is carried out in a warm bath with the addition of bran and a bland, never a medicated, soap, or by fomenting with infusion of chamomile flowers, which has the advantage of being both aseptic and antiseptic after a mild fashion. Then the affected parts are to be enveloped for half an hour, three times a day, in compresses moistened with a 1-in-1000 watery solution of sulphate of zinc. The compresses are to be replaced by fresh ones so soon as they become warm, which for convenience can be laid out on flat plates. This alternation of evaporating fomentation and cooling contraction imitates the natural activity of the absorbing capillaries, and is grateful to the patient. Directly on the moist follows the dry treatment, which consists in the free application of a simple dusting powder, the cheapest and most serviceable being a fine, pure talc, which from its unctuousness serves the desired object of absorption and protection by far the best. If itching is a prominent feature, then 1 to 2 per cent of carbolic acid; if burning, from ½ to 1 per cent of menthol may be added. Iodoform, orthoform, and bismuth are alike inadmissible. In this way the exudation, if present, can no longer serve as a nutritive medium for bacteria; their deposition is prevented. So by the establishment of a protective layer, frequently renewed and kept in position by bandages, the damaged, and for the time permeable, epidermis is replaced, till again regenerated. This procedure in time renders the skin dry. Its smoothness can be restored, if a paste composed of oxide of zinc 60 and olive oil 40 parts be thickly smeared on, dusted over with talc on the trunk, covered with cotton-wool and a light bandage on the limbs. In the morning the face is best cleansed with olive oil. By such simple measures fresh irritation is avoided. The means themselves cannot irritate, while they obviate infection by the medium of the bacterially contaminated nails, or by rubbing or scraping, so prejudicial to healing.

Should superficial pustulation occur, each follicular pustule should be opened with a fine aseptic knife, compresses moistened with acetate of alumina are to be applied, and later the author's well known vaselin-starch paste. For the parasitic forms, if superficial, the same paste, with the addition of 10 to 20 per cent of sulphur, is most efficient. When deeper infiltrations are present, success is hardly possible without tar. The crusted eczema of the face in children can be rapidly cured if managed as follows: It must be carefully cleansed, oiled over, then washed—without so much friction as to occasion bleeding; then thickly smeared with a salve of olei rusci, sulphuris sublimati, ää grammes 15; vaselini, saponis domestici, ää grammes 30; cretæ albæ, grammes 10; M., powder and bandage.

Finally, the *x*-rays cautiously used are of great value.—*Edinburgh Medical Journal,* July, 1904.

EXERCISES FOR PARKINSON'S DISEASE.

In the *Cornell University Medical College Reports,* vol. i, DANA advises the use of the following exercises in this malady. The object of these exercises is to overcome a tendency to weakeness and stiffness of the affected groups of muscles; the result being in general that he has a tendency to bend forward too much, to raise the feet too little, to keep the knees bent, to take too short steps, to keep the elbows too closely to the sides, and the forearms and first phalanges flexed too much. All this can be helped by careful attention to the exercises. The patient should accustom himself to go through these exercises three times daily, devoting to them ten minutes, sometimes less, never more. He should go through them with the greatest possible care and precision, using every effort to contract the muscles in the proper direction, and resting often.

EXERCISES FOR WALKING.

1. The patient should walk up and down the room taking long steps, at least twenty-eight inches to a stride, and taking forty steps. Rest.

2. The patient, having learned to take long steps, should walk with the eyes fixed on a point on the ceiling directly over the top of his head as he walks. This obliges him to throw the head back and the shoulders back. He should take long steps, walking in this way forty paces. Rest.

3. The patient should next learn to turn around rapidly. He should walk in the manner just indicated for ten steps, promptly turn around and walk backward, and repeat this four times.

Patient rests.

EXERCISES FOR THE ARMS.

4. The patient should take a pair of wooden dumb-bells, stand erect, raise them from his side above and back of the head, touching them together. Do this five times. Holding the dumb-bells out straight in front of him he should carry them back as far as possible in a horizontal line. Do this five times.

5. Patient standing erect opens the hands, extending them as far back as possible, stretches out the arms and carries them high above his head, and back as far as he can, as though about to attempt to fly. This motion should be repeated twenty times, the patient holding the head well back and looking at the ceiling.

6. Take a light pair of Indian clubs and swing them around full arm length, each one about twenty times.

7. Patient puts the hand flat upon the table, places a weight of about one-half pound upon the fingers and raises it up ten times with each hand.

8. To stop tremor patient should carry a rubber ball in the hand. By gradually working his hand upon it he can stop the tremor for considerable periods of time.

9. Writing and the drawing of lines and figures can usually be done well, but movements such as lead to forming letters and figures can be introduced into this exercise.

10. Exercise to fatigue does harm.

11. After exercise a short, very hot bath, followed by rubbing, is most beneficial.

THE "FORMAL" TREATMENT OF EPILEPSY.

In the *Publications of Cornell University Medical School,* vol. i, DANA after advising that a certain class of epileptics be treated in institutions says that for the others who cannot be so treated the following plan is desirable:

1. The regulation of the daily life. The patient must, as far as possible, live like a normal individual, and even at some risk be allowed some of the pleasures and indulgences of youth and adolescence. Some study, or some systematic work, if it is only domestic, must be given. Let him go to school for a part of the day, or take special lessons; and if possible let him acquire some musical or artistic accomplishment or learn some handicraft, if it is only making beds and cooking.

2. Exercise and bathing. Three times a week, or even six times if the patient is strong, he must take some very active exercise for twenty to thirty minutes, sufficient to make the perspiration pour out profusely. In the country chop or saw

wood, or ride a wheel; in the city it must often be only pulling weights, or swinging clubs, or boxing, or fencing. When this cannot or will not be done, have the patient get a "hot box," and thrice weekly take a sweat in it followed by a cool ablution or shower. This is usually best done about 5 P.M.; then a rest is taken until the time of the evening meal. Three times a week the patient should take a short (one-half to one minute), very hot full bath, 98° to 108°. While in the bath the patient must move about, rubbing his limbs. The bath is followed by a sponge-off with lukewarm water. This hot bath should be taken in the evening. A cool sponge bath in the morning is often agreeable but not necessary. When the patient cannot or will not take the active exercise and hot box, order a hot full bath every night, but the exercise, in most cases, should be considered vitally important. The object of all these things is to secure a very free action of the skin, muscles, and liver. They will be given with more impunity and greater effect. The patient must be impressed with the need of carrying out these measures with the utmost care.

3. Diet. There is no specific for epileptics. They should have a simple mixed diet, with meat only twice a day, and that in moderation. Many epileptics overeat or eat too fast; many have some digestive disturbances and are constipated. Occasionally one sees brilliant temporary results from a milk diet, or flushing the rectum, or by injections of oil. The digestive tract must be watched most closely; but epilepsy is not an intestinal intoxication, and is not cured by medication along these lines. A diet list, however, should be given, and a laxative prescribed once a fortnight—*e.g.*, the old compound rhubarb pill, alternating with ten grains of blue pill, followed by a teaspoonful of Rochelle salts in a glass of Vichy. The non-saline diet, so far as the writer has observed, gives no results.

4. Operations. Removal of reflex causes and contributing stomach disorders. There is little use in wasting much time on the reflex causes of epilepsy. Much is written of them, but practically they do not exist. Epilepsy is a (usually) progressive degenerative disease of central origin, and due to some congenital defect. If alcohol or syphilis or trauma of the brain is an element in the case—and they very rarely are—such elements must be looked after. The eyes should be examined and errors corrected, because this makes the patient more comfortable. The same is true of sexual and pelvic irritations, but the writer has never observed a case really benefited by operation for phimosis or removal of the ovaries. Any operation, however, may stop the paroxysms for a few weeks or months.

In Jacksonian or symptomatic epilepsy cranial operations are indicated, but in no other cases except in certain imbeciles, when linear craniotomies often give palliative results.

5. Medicines. The basal medication is, alas, bromides. The average daily dose for a person above fourteen is 60 grains. The writer has found the best adjuvant, by all odds, to be the glycerophosphate of soda, which should be given in doses of 30 grains daily. The standard prescription is:

℞ Aq. sol. glycero-sodii phosphat. (50 per cent), f℥ij;
Sodii bromidi, ℥iij;
Aquæ, q. s. ad f℥vj.

M. Sig.: One drachm twice a day in water A.M. and P.M., 6 days in 7.

As will be seen the medicine is given only twice a day, which practice lessens the amount of time devoted to drugs and makes the patient more free during the day. Another important point is that one day, and in some cases two days, in the week all bromide medication is stopped. On this day, usually a Sunday, the patient devotes his time to cleansing his alimentary tract. Saturday night a slight laxative is given (the author uses once a month a mercurial); on Sunday a tumbler of hot water with 30 grains of bicarbonate of soda is drank slowly half an hour before each meal. After each meal an acid tonic is given containing

℞ Tinct. ferri chloridi (1 year old), f℥viij;
Acid. sulphuric. dil., f℥iv;
Glycerole pepsin, f℥viij;
Aquæ, f℥ij;
Olei menth. pip., min. v.

M. Sig: 15 to 25 minims well diluted or dropped in capsules after each meal.

By this means the digestive organs are toned up, and some of the anemia caused by bromide is corrected. In mild cases or those well under control this remission treatment is carried out twice a week, Wednesdays and Sundays.

Usually the above treatment lessens greatly and largely controls the attacks. Sometimes it is necessary to give one-half or even a whole dose of the bromide phosphate mixture in addition at noon; sometimes an extra dose is given on Saturdays.

6. Increase of medication as the patient improves. Epileptic crises usually occur if the disease runs a natural course two or three times a month, often several attacks occurring together. If these attacks are suppressed for three months and the patient begins to feel secure, he should, in the fourth month, have the doses increased 25 per cent. Then they can be dropped to the former average and again increased. The better and the more secure the patient feels the more stringent should be the watch and the larger the dose. For we must secure what we have gained, or start all over again. After a year's remission it is especially important to increase the medication and the general care of the patient, and for two months he must be kept under the strictest surveillance. Then the regimen can be relaxed for a half year, but again and again the patient must be held up with a close rein. In this way alone can we save them. We feel some relief after fourteen months, some security after two years, and finally strong confidence after three years. Much can be done with the epileptic if he is intelligent and coöperates with the physician; or oftener if the mother is patient and watchful—happily most mothers are of this kind, and to them, if the child is not a backward degenerate and has not been wasting too many years in haphazard work, one can promise much. By this the author means that in 5 to 10 per cent the attacks can be suppressed, and in 50 per cent or more they can be controlled, so that the patient can live a comfortable and useful life.

This treatment consists, then: (1) In short, violent exercise that works and hardens the muscles, stimulates the liver, and opens the pores of the skin. (2) A regular system of stomach-washing, so to speak, with laxatives regularly given to unload the bowel of toxins and excess of fecal matter. (3) Regular cold bathing to stimulate the vasomotor system, and a regular series of full hot baths and sweat baths to unload the skin. (4) Administration of bromides in maximum doses but given with regular intermissions, so as to rest the stomach and allow its keeping in good condition. (5) Associating with bromides the phosphates, and often iron, to combat the depressing effect of bromides and its tendency to impoverish the blood. (6) Increase of medicine as the patient gets better.

HAY-FEVER: SOME PRACTICAL SUGGESTIONS AS TO ITS MANAGEMENT AND TREATMENT.

PARSONS writes in the *Medical Record* of July 16, 1904, on this topic. He says that aside from medical treatment, one of the best methods of obtaining relief from the disagreeable symptoms of hay-fever is the cold spinal douche, for from fifteen to thirty seconds, at a pressure of from twenty to thirty pounds to the square inch, at a temperature of 60°. This acts as a powerful tonic to the central nervous system. It also relieves the congestion in the nose in a reflex manner, by inducing the contraction of the capillaries in the nasal mucous membrane. The beneficial effects thus obtained may last for two or three hours, or longer. The cold plunge, shower, or cold sponging may be used, but the results obtained are not so favorable nor so lasting. There are few patients who cannot soon become accustomed to the douche, if properly administered and followed by a brisk rub. If an apparatus for giving the douche is not at hand, water from a pail should be dashed over the patient's back, the operator standing at a distance.

Another excellent method of obtaining considerable relief from the nasal congestion and asthma is the use of the ice-bag. The ice-bag is to be partially filled with cracked ice, the pieces being about as large as a white walnut, and then applied to the back of the neck and the upper fourth of the spine. The ice-bag should be kept in this position for ten or fifteen minutes, and then removed. If the application is made as above directed, the relief of the symptoms characteristic of hay-fever is very marked and lasts for several hours. It may be used two or three times a day without untoward symptoms. If applied at night before retiring, the nasal and asthmatic symptoms will be much relieved, so that the

patient will be able to get several hours' quiet sleep.

A large number of hay-fever patients find a change of climate beneficial. Most patients are greatly improved by a sojourn in the mountains, and some obtain absolute relief. Others find benefit at the seashore, and by bathing in the ocean. The benefit derived from the surf bathing is not merely due to the stimulant and astringent effect of the salt water, but also to the force with which the water enters the nostrils, acting in a mechanical way, by inducing the contraction of the capillaries and dilated veins. The beneficial effect resulting from a bath in the surf is often marked and lasts for hours. Care must be taken, however, not to remain in the water too long, or after the patient begins to feel chilly, for by so doing the results sought for will not be obtained to their highest degree.

The ocular symptoms in hay-fever are often very annoying. There is apt to be more or less conjunctivitis, which may be rendered more intense by strong sunlight and the irritation of dust. There may be considerable lacrimation and the secretion may be very irritating. For this it is well to use Agnew's eye-water three times a day (boric acid 10 grs., camphor 1 oz.). The author also recommends that hay-fever patients wear tinted glasses during the active period of the exacerbation, as at times the reflex action of the bright sunlight on the eyes induces attacks of sneezing, which still further increases the nasal congestion. They also protect the eyes to some extent from irritating dust.

In the treatment of hay-fever we should avoid the use of opium in any form. It should be used only as a last resort, and after all the other means, above advocated, have been given a fair trial.

It is also recommended that the use of cocaine be avoided. We should always bear in mind that the cocaine habit may be formed by its use in a spray. In a large number of cases it will be found that the use of the suprarenal gland, both internally and locally, will give as much relief as was formerly obtained by the use of cocaine.

Patients should be advised to abstain from the use of tobacco during the exacerbation of hay-fever. It has a tendency to produce irritation of the mucous membrane of the respiratory tract and to aggravate any chronic inflammatory condition that may exist.

We should also advise our patients not to indulge in alcoholic stimulants.

In giving directions to our hay-fever patients concerning their diet, mode of life, etc., it will be well to instruct them to avoid walking too fast and getting overheated, especially if the weather be warm and damp or foggy, as under these circumstances asthmatic symptoms are apt to be aggravated. They should also be cautioned against cooling off too quickly, or exposing themselves to draughts.

Patients should be advised to avoid driving in the dust as discomfort is experienced thereby, such as a paroxysm of sneezing and increased nasal congestion. The writer observed one case, and has been informed of another, in which the smell of the sweat from the horse when out driving would cause great nasal congestion and discomfort. The first of these patients could ride in a trolley car or railway car without discomfort, showing that it was not merely the dust that set up the irritation.

MEDICAL TREATMENT IN TUBERCULOSIS.

In the *Colorado Medical Journal* for March, 1904, ZEDERBAUM gives advice as to the medical treatment of tuberculosis. He says that hemoptysis usually takes its own course with the patient being kept quiet in bed, and mostly does not require active interference. Sometimes a saline physic will check the bleeding sooner than anything else. Among the drugs prescribed in this emergency the author prefers the old combination of extract of opium with lead acetate, ½ grain of each, with about 10 to 15 grains of powdered rhubarb. It is astonishing how much of the opiates a bleeding consumptive can sometimes introduce into his system without being subject to the unpleasant after-effects of this otherwise not indifferent drug.

Opium in the same doses, or 5 grains of Dover's powder, with 10 grains of bismuth subnitrate, often also helps to check the obstinate diarrhea of consump-

tives. Another grateful means of conquering this specific diarrhea is the administration of very small enemata with tannic acid and laudanum suspended in corn-starch water. About an ounce or two of the liquid should be used, and repeated every three to four hours until the desired effect has been obtained.

Nausea, and the uncomfortable sensations from the stomach in general, which so often make the consumptive wretched, and are due partly to the involuntary swallowing of the sputum, partly to the effects of toxins, can be overcome by lavage, cocaine, or large doses of bicarbonate of soda with chloroform water and bitter almond water.

Insomnia and nervousness yield often to strontium bromide, or any other of the bromides, but the first named is preferable, as it affects the stomach less. Codeine is also valuable when ordered to be taken at bedtime. The author always uses large doses. They work more surely, and in his experience at least they have never been followed by untoward effects.

A consumptive has to be reminded to keep his bowels open. The writer's cathartic is pulvis glycyrrhizæ compositus; he also prescribes cascara sagrada in a mixture with strychnine, and either compound tincture of gentian or iron chloride tincture. This is a good tonic worth remembering.

A delicate task in the management of a consumptive is the treatment of his cough. It is often difficult to decide *a priori* whether the annoying cough is of benefit to the patient or not. One might think that where the bronchial tubes appear to be invested with an excess of moisture the rational treatment ought to consist of promoting the cough, and consequently the expectoration. The more would seem the better in such a condition, but that is not always the case. The patient may expectorate profusely, and yet not do well at all; on the contrary, he is actually suffering from the constant strain, and keeps up a febrile temperature. The author has found that under the circumstances a narcotic combined with a mild expectorant helps the patient wonderfully. A very useful combination to answer the purpose has proven to be a mixture consisting of dionin gr. 8, apomorphine or tartar emetic gr. 1, syr. altheæ and water to make 4 ounces; a teaspoonful three to four times a day, and an extra dose at night, if required. This mixture is especially of value when the cough interferes with the night rest of the patient. In general, the character and significance of the cough should be carefully studied before attempting to prescribe for it. In some cases the treatment of the nasal cavity, or of the pharynx and larynx, will check an obstinate cough where the best combinations of expectorants, with or without narcotics, have proved entirely useless.

FALLING OF THE HAIR.

McDONNELL contributes to the *Journal of the American Medical Association* of July 16, 1904, the following advice about the treatment of this state:

After the scalp has been thoroughly cleansed by the shampoo, the following formula is to be used:

℞ Acidi salicylici, 1.0;
Sulphuris præcipitati, 2.5;
Unguenti aqua rosæ, 25.0.
M.

The patient is directed to part the hair, and then to rub in a small portion of the ointment along the part, working it well into the scalp at the roots of the hairs. Then another part is made parallel to the first, and more ointment rubbed in. Thus a series of first longitudinal and then transverse parts are made, until the whole scalp has been well anointed. Done in this way, it is not necessary to smear up the whole shaft of the hair, but only to reach the hair roots and the sebaceous glands, where the trouble is located. This process is thoroughly performed for six successive nights, and the seventh night another shampoo is taken. The eighth night the inunctions are commenced again, and this programme is continued for six weeks. In almost every case the production of dandruff is checked completely after six weeks' treatment, and the hair, which may have been falling out rapidly before, begins to take firmer root. To be sure many hairs which are on the point of falling when treatment is begun will fall anyway, and it may even seem for a time as if the treatment were increasing the hair-fall, on account of the

mechanical dislodgement of such hairs, but this need never alarm one.

After six weeks of such treatment the shampoo may be taken less frequently—say once in a fortnight. Yet when one thinks of it there seems every reason why the scalp, which offers such an easy lodgment for dust and dirt of all kinds, and which itself is casting off effete products surely as rapidly as the rest of the body, should be washed at least as often as the other parts of the body.

By such treatment, then, we have removed all dandruff, and by the reducing action of the sulphur on the sebaceous glands have checked its further production for a time.

Next to dandruff perhaps the most common cause of early loss of hair is heredity. In some families all of the male members, or all who resemble one particular ancestor, lose their hair early. Dark-haired families and races, as a rule, become bald earlier than those with light hair. At first thought it would seem as though nothing could be done to prevent premature baldness when heredity is the cause, but this is a mistake. Careful hygiene of the scalp will often counterbalance hereditary predisposition for a number of years, and even after the hair has actually begun to fall proper stimulation will, to a certain extent, and for a limited time, often restore to the hair its pristine thickness and strength. Any of the rubefacients may be prescribed for this purpose for daily use, such as croton oil, 1½ per cent; tincture of cantharides, 15 per cent; oil of cinnamon, 40 per cent; tincture of capsicum, 15 per cent; oil of mustard, 1 per cent; or any one of a dozen others. Tincture of capsicum is one of the best, and for a routine prescription the following has served well:

℞ Resorcini, 5.0
Tincture capsici, 15.0
Olei ricini, 10.0
Alcoholis, q. s. ad 100.0
Olei rosæ, q. s.
M.

It is to be recommended that the stimulant be changed from time to time, so as not to rely on any one to the exclusion of others. Jaborandi, oxygen gas, quinine, and other agents have enjoyed a great reputation as hair-producers for a time, and have then taken their proper position as aids, but not specifics, in restoring the hair.

It is a well known fact that after many fevers, especially those accompanied by great depression, such as pneumonia, typhoid, puerperal, or scarlet fever, the hair is very liable to fall out during convalescence. This is brought about in a variety of ways: In scarlatina the hair papilla shares in the general desquamation; in typhoid and the other fevers the baldness may be the result either of the excessive seborrhea, which often accompanies these diseases, or may be caused by the general lowering of nutrition of the body. Unless the hair-fall be accompanied by considerable dandruff (in which case the above mentioned treatment should be vigorously employed), the ordinary hygiene of the scalp will result in a restoration of the hair in most cases, but the employment of moderate local stimulation, with the use of good general tonics, will hasten this end. It seems unwise to cut the hair of women short in these cases, because the baldness is practically never complete, and a certain proportion of the hairs will retain firm root. These may be augmented by a switch made of the hair which has fallen out, until the new hairs shall have grown long enough to do up well. In this way all of that oftentimes most annoying short-hair period is avoided.

EPISTAXIS AND ITS TREATMENT.

In the *Charlotte Medical Journal* for July, 1904, TILLEY suggests proceeding somewhat in the following way:

1. Soak a small pledget of sterilized absorbent wool, about one inch long, half an inch broad, and a quarter of an inch thick, in equal parts of a 10-per-cent solution of cocaine and 1-in-1000 adrenalin chloride. Pass this into the nostril and place it against the septum parallel with the floor of the nose, so that only the anterior third of the pledget is visible from the outside (*i.e.*, without the use of a speculum). Now gently compress the nostrils with the fingers for five minutes.

2. If you have not the above remedies at hand, dissolve twenty grains of antipyrin in half an ounce of solution of witch-hazel and use in the same manner.

3. Failing these, soak the wool in lemon juice and insert it as above. If

you cannot even get lemon juice try moistening the wool with turpentine.

In a large proportion of cases these measures will check the bleeding, and the small wool plug may be left in the nose for twenty-four hours and then gently removed.

Should hemorrhage recur after a short interval, it may be necessary to adopt measures for more permanently sealing up the weak spot in the vessel wall, and we may pass in the following way from the simpler to the more complex methods:

1. Dilate the nostril with a suitable speculum, and apply to the vessel wall a 10-per-cent solution of cocaine. Wait for five minutes. Now apply to the bleeding point a probe coated with solid nitrate of silver and hold it in position for two minutes. Remove it gently, and to the whitened spot apply a small quantity of carbolized vaselin. Place a loose wool dressing in the nostril for a few hours. Chromic and monochloracetic acid may be applied in the same way.

2. If you possess a galvanocautery, apply this at a dull-red heat to the bleeding point, and remember that at the first moment of application you may start a bleeding which you desired to stop, and therefore it is well to adopt means for protecting the patient's clothes from being soiled. To the small slough produced by the cautery it is well to apply a little carbolized glycerin.

3. Should these methods fail (and they may do so in exceptional cases where the bleeding is more general, and comes not only from the usual situation on the septum but also from the floor of the nose and the anterior end of the inferior turbinal bone), you should pack the nose with a soft strip of gauze soaked in adrenalin chloride or even hazeline. The ribbon gauze should be about one inch in breadth and packed in gently for about two inches distance, and from the floor of the nasal cavity upward. A clotting will rapidly take place in the meshes and the bleeding will cease. The packing may be left for twenty-four to thirty-six hours.

Immediate checking of violent hemorrhage may sometimes be secured by Rose's epistaxis tampon, a thin guttapercha, conical bag which can be inflated with air after it has been passed into the nose, and air retained by means of a stopcock.

The author prefers the methods advocated before the last mentioned, because they are quite as reliable and are generally accessible.

It may be our experience to meet with almost intractable cases of epistaxis in which all the above remedies either fail or only succeed for a short while. In such circumstances Hunter Mackenzie has practiced with success the dissecting up of the mucous membrane of the anterior part of the septum, followed by gentle packing of the nose.

When nasal hemorrhage follows intranasal operations some form of plugging through the anterior nares will generally be relied upon.

For the sake of the physician's reputation as well as for the comfort of the patient the author advises the avoidance of three things:

1. The application of strong preparations of iron to the inside of the nose. They cause much discomfort and are not more effectual than less irritating chemicals.

2. Distending the vestibule or entrance of the nose with large plugs of cotton-wool or lint, which do not touch the bleeding point and only render the patient exceedingly uncomfortable.

3. The use of Bellocq's sound and the postnasal plug. If the physician possesses that instrument let him give it to a friend interested in medical museums. In the author's experience of ten years he has never met a case of epistaxis which needed it. If the physician will only find the bleeding spot and apply his remedies as advised, he will not subject his patient to the horrible discomfort and very real dangers of septic otitis media which posterior plugging of the nares involves.

Finally, the persistence and severity of epistaxis is often promoted by the rapid heart action which is encouraged in many cases by the patient's anxiety and mental disquiet, and to overcome this the physician should rely upon two valuable remedies: (1) the assurance which he should be able to give that all will be well; (2) the administration of a narcotic, an excellent form for this type of case being the deodorized laudanum in combination with the bromides.

EYE-STRAIN: THE IMPORTANCE OF ITS DETECTION AND CORRECTION IN ALL GENERAL NERVOUS DERANGEMENTS.

HOBBS in the *Charlotte Medical Journal* for July, 1904, advises that a mydriatic should be used in eye-strain to suspend the accommodation in all cases under forty years of age, and this he thinks is now the generally accepted opinion. But when the patient's time has been limited he has sometimes tried to measure and correct these errors by resorting to some mydriatic, of a modified strength, or to none at all, but neither means has proved satisfactory to himself, nor even to the patient after a short time has passed. To make such tests and corrections properly requires usually a week or ten days, and even two weeks is best to be sure of the results, as it is quite as important to be sure of the optician's work, after the refraction prescription has been decided upon. The author's optician knows that he always sees and passes upon all lenses and frame fittings that he makes by his prescriptions.

The muscles that control the movements of the eyeballs get their incentive for action, for the most part, by involution, and they act not only in pairs, but as a rule in double pairs, yet the quickness of their movements exceeds, probably, that of any other system of muscles in the body. Hence the inaction, or out of action, of one or more of these muscles is soon felt, especially when, as is usually the case, there is some coincident refraction error.

Every doctor has had his cases of functional nervous reflexes, each with its own particular phases. Usually such cases are periodic in their manifestations, yet sometimes they are continuous. But when he has eliminated every probable cause for such a reflex, and the patient persistently returns, he very naturally gets tired of it and enters the case in his note-book as a "nervous crank." Finally he concludes to suggest only rest and seclusion, which is probably the first really good advice he has given his patient, presupposing that, by exclusion, there could be nothing left but eye-strain as the cause. So when rest and seclusion has given the nagged and out-of-gear eye muscles a little time to recuperate, and the nervous manifestations are in abeyance for a time, the doctor has his cue for an eye-strain; then when he has accurately corrected it and finds that all the nervous reflexes have disappeared, he will be almost as much delighted as the patient, but he will be even more surprised.

The importance of correcting astigmatism, particularly when out of the rule, and still more so when it is associated with any form of "heterophoria," is so much more apparent each year that he urges all medical men to give such cases a more careful thought, and a more accurate investigation.

DENVER AND PULMONARY TUBERCULOSIS.

According to BEGGS, in the *Colorado Medical Journal* for March, 1904, there are certain classes which should not be sent to Denver. They may be classified as follows:

1. Phthisis florida in any stage. No climate is specific against tuberculosis, and no climate will rescue such cases from inevitable death.

2. Cases in which there is not sufficient lung substance left to perform the additional work of respiration imposed by the rarefaction of the air. It is estimated that the respired volume of the air at this elevation must be one-sixth more than at the sea level in order to furnish the same amount of oxygen to the blood. While normally there is considerably more lung substance than is necessary for the performance of the respiratory function, this gradually disappears with the encroachments of the tubercular process, and in high altitudes the surplus, being smaller, is exhausted earlier. Cases so affected, if sent away from home at all, should be recommended to a lower altitude than this.

3. Those individuals in whom the character or extent of the pulmonary lesions furnish no contraindications to high-altitude treatment, but who are unwilling to submit themselves to the self-control and hygienic conditions necessarily imposed by their condition. Many individuals go to a health resort expecting the climate to do everything for them, and consequently yield to imprudence of the most varied kinds, which they would not dream

of indulging in at home. They will not do well, and are lulled into a sense of false security by their surroundings.

No patient should be sent away from home on account of this without being referred to some trustworthy practitioner of the locality to which he is directed. As far as possible, chance should be eliminated from further interference with the case. The writer frequently meets individuals whose treatment is still being controlled from a distance by the physicians they were in the habit of consulting at their former homes. These same physicians would not for a moment think of trying to treat a case of pneumonia or typhoid fever a thousand miles away. Tuberculosis, while usually not so rapid in its course, requires no less careful consideration and observation of its progress. Treatment by mail is not in accord with the patient's best interests. The competent practitioner at a health resort of any kind is a far better judge of the availability of local therapeutic agencies and the modifications most suited to the individual case than any physician possibly can be who is situated at a distance.

In conclusion, the writer quotes from the work of C. T. Williams on "Aero-Therapeutics," the Lumleian Lectures for 1893. He says, concerning Colorado: "With regard to the actual results of the climate it undoubtedly produces great improvement in seventy-five per cent of the cases of phthisis generally, and in forty-three per cent it causes more or less complete arrest of the tuberculous process."

THE ANTAGONISM OF STRYCHNINE AND ALCOHOL.

FRENCH asserts his confidence in this antagonism in *Merck's Archives* for July, 1904. He believes the most important of the drugs employed for chronic alcoholism is strychnine. Its well known properties point the way to its use in this disease. It is the most powerful nerve tonic known to the medical profession. It acts upon the entire nervous system, but with a special tendency to the spinal nerves and the cardiac, respiratory, and vasomotor centers. It not only renders the mind more clear and active, but even seems to strengthen the will-power. It increases intestinal peristalsis, and aids elimination. Briefly stated, its basic action is almost exactly antagonistic to that of alcohol. It is a tonic and true stimulant, as opposed to an anesthetic and a paralyzant.

The system of the inebriate is relaxed in every part, paralyzed in greater or less degree, unable to carry on its functions properly. Mentally and physically the drunkard is dull, nerveless, incapable. The essence of his condition is that he has lost the power to control himself. He lacks the vigor and endurance that once were his. His mind is dulled, and his moral sense is weakened.

It is in such a condition as this that strychnine has its proper field of action. By its use the tissues are revivified. As a part of its effect, every nerve and muscle is keyed to its highest pitch. The mind acts more clearly, and the man is raised out of his soddenness and indifference. The world takes on fresh colors, and life assumes a new interest. The feeling of depression and inability gives way to one of lightness and elasticity. The terrible craving for alcohol, the dull, horrible gnawing at the stomach, that fearful, all-gone sensation, which in the drunkard's previous experience was only to be relieved by more alcohol, now begins to grow less and soon disappears entirely, while in its place there comes a sense of well-being, of elevation, of ability, of the power to accomplish, which is so unlike that false sense of confidence which comes with the first glass of an intoxicant, and so far superior to it, that the man no longer seeks to drown his grief in alcohol. His appetite for this is gone, and he no longer seeks or desires that for which but yesterday he would have periled body and soul. All these effects have been brought about by the action of strychnine in antagonizing those of alcohol.

These convictions were formed as the result of several years of special experience in the sanitarium treatment of alcoholism, and have but been deepened by the observations of similar effects in private practice during the years that have followed.

As specially illustrating the counteracting effect of the two drugs, the author recalls the case of a man who was a hard drinker and possessed of an ungovern-

able appetite, and who yet had left enough manhood and ambition to be anxious to be free from his bondage. He was undergoing treatment by the tonic method, the main element in which was strychnine, while at the same time he was allowed to drink as long and as much as he desired, in the belief that this method would produce the most satisfactory results. It was perhaps largely his experience with this patient that led the author afterward to modify this plan, and assure every patient that the less whiskey he drank, and the sooner he got through with it, the better it would be for him, and the more satisfactory would be the final result of his treatment. For three weeks this man continued to drink to excess, notwithstanding the fact that he "could not keep it down." In fact, while the sickening effect produced by apomorphine was especially well marked, the antagonistic effect of the strychnine, upon which alone is any reliance placed for a true curative action, seemed not to be in any way manifest. At the end of this time the patient was told by the author that he should be obliged to taper off his whiskey, and withdraw it wholly in three days. No sooner was the whiskey reduced than the effects of the strychnine were made manifest, and at the end of the three days his desire for whiskey was entirely gone. The next day he still had no desire for liquor, and the following one he could not have been driven to take it. Nor has he ever, from that day to this, either drank or desired to drink any more alcohol, though ten years have now passed, and he has been for several years the liquor officer of his town.

TUBERCULOSIS OF THE LARYNX.

In the *Colorado Medical Journal* for March, 1904, WAXHAM quotes Theodore Heryng, of Warsaw, who gives the following conclusions:

1. Tuberculosis of the larynx can heal itself without any local treatment.

2. The chief indications in the treatment of laryngeal tuberculosis, which is almost invariably associated with tubercular disease of the lungs, are hygienic, dietetic, and climatic.

3. The most important indication is the removal of the dysphagia.

4. The second, equally important, indication touches the special cases in which the breathing becomes difficult and symptoms of stenosis appear on account of tubercular infiltration and proliferation products.

5. The third indication has to do with the recovery of the impaired or lost voice.

6. The healing of deep ulcers of the larynx resting on inflammatory infiltrations surrounded by proliferation products and certain forms of chronic laryngeal tubercle is effected quickest by scraping, or rather removal of the tubercular tissue.

7. The surgical treatment is indicated: (*a*) In tubercular tumors of the epiglottis; (*b*) in circumscribed chronic infiltration of the posterior wall of the larynx; (*c*) in chronic tumors which resist all other methods of treatment; (*d*) in partial disease of the larynx.

8. Surgical treatment is contraindicated: (*a*) In advanced phthisis of the lungs with hectic and wasting; (*b*) in diffuse miliary tubercle of the larynx or larynx and pharynx; (*c*) in all cachectic conditions; (*d*) in severe cases of stenosis caused by inflammatory swelling of the affected parts; in these cases tracheotomy must be performed as soon as possible; (*e*) in patients exhibiting fear and nervous excitability.

9. With the proper application of cocaine the operation itself is not painful.

10. Pyoktanin (½- to 2-per-cent solution) has proved a very good means of preventing inflammation of parts operated upon. It must be applied to the surface of the wound twice a day.

11. Recurrence takes place frequently.

12. Nearly the whole of the upper part of the larynx is accessible to surgical treatment.

13. In spite of successful operation the disease may return.

14. The conditions for success of the surgical treatment in general depend: (*a*) On the local character of the infection, its extension, and its nature; (*b*) on the general state of the patient, his nutrition, and strength; (*c*) on the anatomical character of the affection of the lungs; (*d*) on the age of the patient, his profession, constitution, temperament, and character; (*e*) on the thoroughness of the operation itself; (*f*) on the careful after-

treatment and the capability of the patient to submit to a prolonged dietetic and climatic treatment.

15. It is difficult to establish a prognosis.

16. Serious bleeding after operation is rare. It can be stopped by the application of a mixture of lactic acid and solution of perchloride of iron, equal parts.

17. The want of success is often due to the disease being recognized too late for treatment.

18. Surgical treatment requires thorough knowledge of the operation.

19. Bad cases ought to be treated in climatic establishments.

BICARBONATE OF SODIUM IN THE DRESSING OF WOUNDS.

MILLER advises the use of this substance in the *Medical Summary* for July, 1904. As he well says, every practitioner is called upon to treat cases of burns, slight injuries, and abrasions. He feels that he is competent to suggest a number of agents which can be used in various ways for the dressing of such lesions. Many agents can be used, but the question as to their value often presents itself to the physician when he notes the course of the condition. The author's general surgical work has always brought him in contact with a great many minor injuries, and where a lesion is produced by trauma, heat, or chemicals, he has found as an excellent dressing various strengths of bicarbonate of sodium. This common and inexpensive chemical is an agent which, if used properly, will prove exceedingly valuable to promote the formation of healthy granulations after an injury which leaves a surface denuded, and the most valuable feature of such dressings is that there is little tendency on the part of the granulations to become unhealthy, even though considerable time must pass before the epithelial cells can cover the denuded area from the margins.

The bicarbonate of sodium was recommended some time ago to be used in pure form in the dressing of the wounds subsequent to the operation for bubo, but after a trial of the pure drug the author found it convenient to return to applications of salves containing from four to twelve per cent of the drug. The objection to the pure drug was that it was too stimulating and caused discomfort to the patient, which was undesirable where a large area was covered with the agent.

The most convenient vehicle for the bicarbonate is vaselin, and in surgical practice the author recommends that all practitioners prepare this salve or dressing, and see that it is dispensed in a sterile condition. The physician should always remember that vaselin is easily sterilized, and whenever there is a possibility of a jar of this drug being infected, if it is allowed to stand in boiling water for a time it will be effectually sterilized.

In using bicarbonate of sodium as a dressing in vaselin, the mixture should contain from 20 to 60 grains of the drug to the ounce.

The author has also had recourse with satisfaction, in more than one instance, to solutions of this drug as a wash and wet dressing, and recommends that the general practitioner more often utilize this agent in various ways rather than more expensive and less efficient agents.

TREATMENT OF LOBAR PNEUMONIA IN THE ADULT.

DUKEMAN contributes to the *Medical News* of July 16, 1904, an article in which he points out that by the time the physician is called to see a patient with an attack of pneumonia the pneumococcus has invaded every avenue, and as there is at present no reliable or trustworthy antipneumococcic serum, we must confine our treatment to meet indications as presented, and we must therefore be prepared to meet promptly any emergency that may arise. It is advisable, therefore, at once to order to be delivered to the sick-room a 200-gallon tank of oxygen, one ounce aromatic spirits of ammonia, one ounce tincture digitalis, mustard plasters, and a cotton jacket to be made and put on the patient as soon as completed. The patient is placed in a large, airy room with plenty of sunlight, the bed so arranged as to keep the patient out of draughts, for we require in this disease a free circulation of fresh, pure air both day and night. If the temperature is too cold, artificial heat is supplied to keep the temperature of the room at about 65° F., and a good nurse in constant attendance; no one else

should be allowed in the sick-chamber; quiet and rest are essential to recovery.

The existing toxemia calls for our first attention, and could we but rid the system completely of this toxemia many of the serious symptoms which we may be called upon later to combat would be greatly modified or would not ensue.

To combat the toxemia, the skin and the bowels are the main avenues through which this may best be accomplished. If called to see the patient in the first stages, the skin must be acted on, not by the administration of drugs internally, but by opening up the pores by giving a good sponge bath of hot water, using plenty of soap, and then giving a hot foot-bath containing mustard. This latter can best be accomplished while the patient remains in bed well covered, by the placing of a small tub containing hot water and mustard under the blankets, and with the knees flexed and feet in the tub, the blankets are well tucked around him. At the same time the author administers a large draught of hot lemonade, which very materially aids free perspiration. The patient is to remain in the above position for one-half to one hour, when free perspiration takes place. He is to sweat for about half an hour freely, when he is to be dried and rubbed well with coarse towels to get up a good cutaneous capillary circulation. This greatly relieves the congested and dilated capillaries of the lungs, and modifies, to some extent, the amount of inflammatory exudate, and at the same time reduces any existing high temperature. The chest is now encased in the cotton jacket, and should the patient complain of any pain over the seat of inflammation, a mustard plaster is placed over it, and after this is removed the chest is well oiled with camphorated oil, which is not only soothing but gives off an agreeable odor to the patient, and somewhat soothes and relieves the embarrassed respiration.

The bowels are now to be acted on by the administration of two or three grains of calomel given in divided doses of half a grain every half-hour, to be followed in six to eight hours by a Seidlitz powder or dose of Epsom salts. When this is accomplished we have succeeded in relieving very materially the engorged blood-vessels, and especially the portal and pulmonic congested circulations and any distention of the right heart, and the pulse, though frequent, will be soft and compressible, and the temperature lowered.

The action of the kidneys is best kept up by the free administration of pure water at the temperature of the room. It is a serious mistake to administer stimulating expectorants and diuretics. The least medicine given the pneumonic patient, the better are his chances of recovery. To give medicines to excite too great functional activity in the already inflamed lungs or kidneys is absolutely contraindicated. The stimulating expectorants absolutely have no place in lobar pneumonia. The kidneys being more or less involved in every case of pneumonia, dry cupping over the kidneys is all that is required. The teeth and mouth must be kept sweet and clean by the frequent and thorough cleansing of the same with an antiseptic solution.

To aid in the elimination of the toxemia, mild action of the bowels should be kept up, either by a daily dose of a mild saline aperient, or aided by an enema of warm sterile water. The action of the skin should be maintained by the daily sponge bath of tepid water and soap.

The diet should consist of plenty of pure water at the temperature of the room, and all food should be liquid—chiefly milk. If the stomach is weak, the milk should be peptonized and be given in small quantities, not over four to six ounces at stated intervals of every three hours. Overfeeding must be avoided, as this would embarrass both respiration and circulation. If only one lobe is involved, our patient may go on to recovery without any further treatment, but if a large surface be involved, or a double pneumonia exists, our skill will be taxed to the limit. The heart will be the first to need our most careful attention. Heart symptoms may develop at an early stage, and the attending physician should make frequent visits to be able to recognize its earliest appearance. The nurse should be instructed and be on the alert at all times, never leaving the bedside, that she may recognize any wavering of the heart action.

The treatment of pneumonia here is the treatment of the conditions presented,

not the treatment of the lungs, but the stimulation of the heart and the elimination of the toxemia. To help ward off heart weakness, the author usually commences the early administration of one-sixtieth grain of strychnine hypodermically every four to six hours, according to amount of lung surface involved and the condition of the circulation, and gradually and systematically increases the dose to one-thirtieth or one-twentieth grain, as circumstances demand. Strychnine acts powerfully upon the vasomotor and respiratory centers, increasing their activity, and we must not push the remedy too strongly, for strychnine is a stimulating expectorant, and we may, at certain stages of the disease, increase the engorged condition of the lungs. We therefore should watch its action as closely as we watch the action of the wavering heart. This is why we are sometimes disappointed in the action of strychnine when it fails to strengthen the heart's action at a critical time. It is here that alcohol in the form of good rye whiskey or pure brandy, in doses of one-half ounce, diluted in water, supported by five minims of tincture of digitalis, is called for, and the strychnine continued in moderate doses. Should we need a more quickly acting stimulant, 30 minims of the aromatic spirits of ammonia with five to ten minims of tincture of digitalis, given in water, is called for.

THE CLIMATE OF SOUTHERN CALIFORNIA WITH REFERENCE TO PULMONARY TUBERCULOSIS.

Writing upon Southern California as a health resort ABBOTT says in the *Colorado Medical Journal* for March, 1904, that it is not a "Perpetual Spring," as our railroads advertise it, but it is a great deal better. It is perpetual fall, an everlasting September and October of New England. We do not have the hot, muggy, humid climate of Florida, but the clear, cool air of a New England fall. The sunshine is hot, the air cool, not cold. Standing still in the sun one is too warm; step five feet into the shade and one is a little too cool; working and walking one feels just right. For this reason patients should bring their warm clothing. Our nights are always cool. A winter overcoat is often very comfortable when riding in the late afternoon or at night, just as it is in New England after a warm October day. In the East men go out without coats and work in their shirt-sleeves in September and October. Our men do this the year round.

Our "rainy season" is a misnomer; we have nothing like the rainy season of the tropics. The "rainy season," so-called, is merely the time when the rains come, now and then, here and there, from December to April. It rains in Southern California just as it snows in New England. Between the rains are the brightest, happiest days of all the year. We do not have rain enough, and from May to December we have hardly a rain-storm. Day after day, week after week, there is no rain at all, but the days are bright and clear the summer through.

Some tire of this perpetual sunshine, but not the tubercular patient. The relief to the kidneys and lungs by the comfortable activity of the skin is a great blessing to them. Those of us who live here enjoy the summer even more than winter.

Is the climate enervating? No, not in the least. It is somewhat more monotonous to those who have nothing to do, but the active man can do more here than in the East. And the tubercular patient must have something to do—bodily temperature permitting—if he would get well. He must "work out his salvation" physically, as well as spiritually. If he seeks a cure, he must plan for it as he would plan for a college education. One cannot secure a college education in two months or even a winter's course. Neither can one secure physical health in the same time. Let the tubercular patient plan for a two or four years' health course, and he will graduate a physically perfect man.

Many physicians and most patients think that climate is composed of clouds and sunshine, thermometers and barometers, wind currents—especially drafts—and rainfalls. One of the greatest factors of climate, as applied to the tubercular patient, is the geological structure of the few acres of ground upon which he lives. The underground climate is often of more importance than that above ground.

If the subsoil is a cold clay or hard-pan.

full of water, to within a few feet of the surface, the patient will forever be chilly, catarrhal, and rheumatic. If, however, it is a warm, well-drained, sandy and gravel subsoil, the patient will be warm limbed, non-catarrhal, and well nourished, if he will eat and exercise.

PESSARIES: THEIR USES AND LIMITATIONS.

In the *Medical Press* of July 6, 1904, GILES writes on this subject and gives the following advice regarding the indications for the use of pessaries. The author considers the conditions where pessaries are of service, and the particular kind to be used in each case. These conditions fall into three classes, which may, however, be more or less combined: (1) Hernia of the vaginal walls—that is, cystocele and rectocele. (2) Prolapse and procidentia of the uterus. (3) Backward displacements of the uterus.

1. *Hernia of the Vaginal Walls.*—In uncomplicated cases of cystocele and rectocele a rubber-ring pessary usually answers best, whether there be a cystocele alone, a rectocele alone, or a combination of the two. But in some cases of cystocele a ring does not answer, owing to the tendency of the anterior vaginal wall to slip down in front of the pessary, and it is then that the author has sometimes found an inverted Hodge, with a single curve, meet the case. When a rubber ring is used, it should be thick in section, as in the Meyer pattern; if a large, thin ring be introduced, the vaginal wall will come down through it. Solid wooden or vulcanite rings should be avoided, because during their introduction and removal they stretch the vaginal orifice unduly. Sometimes the perineum is so deficient that the vaginal orifice is the widest part of the passage; in such a case no ring will keep in position any more than a ball could be held up in a hollow cone whose apex was upward. We must then rely on some kind of vaginal stem-pessary, such as Napier's, held in position with perineal bands fastened to a band round the waist.

2. Cystocele and rectocele are frequently combined with prolapse and procidentia of the uterus; or the uterus may descend without the vaginal walls being affected, otherwise than secondarily. In any case the uterus displacement is the one which calls for treatment, and the vaginal condition will be treated incidentally, and at the same time.

For prolapse—that is, descent of the uterus within the vagina—a rubber ring usually answers best. But if the perineum be deficient we shall require a Napier pessary, or other vaginal stem-pessary. Sometimes the perineal bands are not well borne, as they may cause chafing and irritation; and we may then have to resort to that makeshift of therapeutic insolvency, a Zwancke pessary, or to that other refuge of the destitute, a Gariel air-pessary. The effect of the latter is to keep the vagina in such a chronic state of distention that the natural shrinkage of the vagina incidental to the climacteric, which is looked to as the means of bringing about an ultimate spontaneous cure, is thwarted indefinitely.

For procidentia—that is, descent of the uterus outside the vagina—we have to proceed somewhat as for prolapse, with this difference, that the vaginal orifice is so stretched by the descent of the uterus that no ring will keep in at first. But, unless the perineum has been much torn, if the patient be kept in bed for a week or so, and the uterus remains within the vagina, the orifice will usually contract again sufficiently to retain a rubber ring.

3. *Backward Displacement of the Uterus.*—This is the class of displacement most difficult to deal with. In uncomplicated cases, where the uterus is mobile and has not been long out of place, a cure may not infrequently be obtained by means of a well fitting Hodge pessary, or one of its modifications, such as an Albert Smith, a Thomas, or a Braxton Hicks. In the two latter forms the posterior bar, which rests in the posterior fornix, is thickened. There are various conditions, however, which make for failure. If the retroversion has existed long, the uterus may attain a condition of hyperplasia, and the heavy fundus then topples backward over the pessary. If one or both ovaries be prolapsed, the Hodge is liable to cause such painful pressure that its use has to be discontinued. If there be cicatricial contraction obliterating the posterior vaginal fornix, or forming bands across it, a Hodge is

unavailing. The writer recently had such a case in the hospital, where an antero-posterior band stretched across the fornix from the apex of the cervix, and the only possible way of correcting the displacement was by ventrofixation of the uterus, which was accordingly done. If the uterus be the subject of a congenital retroflexion, we may push the organ somewhat forward, but the retroflexion will remain and undo our work. For such a condition pregnancy is the best cure. Lastly, if the uterus be held down by adhesions to the floor of the pelvis, pessary treatment is out of the question. The author has no confidence in the plan (which has been proposed) of forcibly breaking down adhesions by manipulation; to tear a hole in the bowel by such maneuvers would not be a difficult matter.

It is bad practice to introduce a Hodge or other pessary without first correcting the displacement, in the hope, which is a vain one, that the constant pressure of the instrument will gradually overcome the resistance. By such a course we merely add risk to inefficiency.

HEART LESIONS AND TREATMENT.

ABRAM in the *Lancet* of August 6, 1904, discusses the therapy of cardiac lesions and divides his subject into three headings: (1) Compensation practically equal to the lesion; (2) compensation only equal to the lesion when the patient is at rest; and (3) compensation unequal to the lesion.

1. Should the patient in the first subdivision be informed of his trouble? This is believed to be a wise procedure, otherwise it is difficult to get the necessary mode of life carried on. In general terms, we must warn him against excess of all kinds, mental as well as physical. It is not necessary to forbid exercise in moderation; cycling is permissible as exercise, but not in competition. If cycling be indulged in care must be taken not to struggle against head winds or up-hill. Moderation in the use of alcohol and tobacco must be enjoined, abstinence even being advisable. General dietetic and hygienic measures should be borne in mind. Even in this stage in mitral stenosis there is the risk of hemoptysis or embolism. The treatment the author has found most useful in hemoptysis is a free saline purge, with a dose of opium. Are such lives insurable? Most offices would reject aortic cases, but would accept mitral cases with an addition to the premium. For his own part, the writer would not advise acceptance, but would make it a rule to give a full report on the lines he has sketched, and leave it to the office to decide. His reason for refusal is the impossibility of foreseeing accidents, such as infection.

If the patient is a female, what should be our advice, if asked, as regards marriage? The less common form, aortic trouble, is a bar to matrimony. Well compensated mitral regurgitation cases often pass through pregnancy without trouble; in stenosis cases, although the same favorable course is possible, yet at times grave symptoms arise, and notably attacks of tachycardia or acute edema of the lungs. If pregnancy occurs in a case of mitral stenosis the patient should be kept under observation, and the slightest sign of distress should be actively treated. Limited diet, free action of the bowels, with possibly bleeding in the more threatening cases, will sometimes ward off the necessity for terminating the pregnancy. But marriage is certainly inadvisable.

2. In the second subdivision we find cases in which palpitation, precordial pain, and dyspnea are manifest on exertion, and in a more advanced degree some passive congestion and its results in the kidney and liver. In aortic cases throbbing in the neck vessels, headache, and giddiness may be troublesome. Absolutely the best treatment is a week in bed with limitation of fluid and regulation of the diet and moderate purgation. A belladonna plaster often gives relief—whether it acts medicinally or physically matters little. In aortic cases, the author has found bromide and iron to give relief. General tonics, iron, strychnine, and the like, with perhaps small doses (from two to three minims) of tincture of digitalis where rest cannot be taken, will help to put the case into subdivision 1. It is of great importance to determine the nature of the valvular lesion. Is it associated with vascular and renal disease, or is it purely cardiac? The tension of the pulse and the state of the artery are valuable guides

to treatment; when the former is high and the latter shows signs of disease, a rigid milk diet coupled with diuretics acting on the kidneys, such as the xanthin derivatives and the use of some mineral water, will help to lower vascular tension by eliminating toxins.

3. The case of valvular disease, whether aortic or mitral, which reaches the hospital suffering from the signs and symptoms of failing heart needs little description. The "heart-chair" to maintain the trunk upright is often necessary. The writer does not dilate on the necessity for care in feeding, but simply says that limitation of fluid is often of great service. The bowels may be gently acted upon. Sleeplessness is often a troublesome symptom in mitral cases attended with marked mental depression. In aortic cases excitement and even maniacal attacks may be present; the writer mentions one case of violent mania in aortic regurgitation. The modern hypnotics—trional or sulphonal and paraldehyde—sometimes suffice, but opium is our sheet-anchor. In a case of heart disease in a young subject admitted to the infirmary when the author was a house physician, all efforts had apparently proved futile, but opium before food was ordered in the form of liquor opii sedativus, and liquor pepticus after food. The girl forthwith began to mend, and eventually was able to leave the hospital in very fair condition. Good service has been rendered by the old pill of squill, digitalis, and mercury when the engorgement of the stomach and liver has been marked, and blue pill is the well-spoken-of remedy of many sound practitioners.

Should we use digitalis in aortic cases? The answer to this is not quite simple. When we find thickened arteries and possibly some increase of tension in the radial pulse, placing the case in what Huchard and his pupils would call the cardiovascular class, there is no doubt that the best line of treatment is to limit fluid intake, open the bowels, and give renal diuretics. If direct cardiac stimulants are used, strophanthus is preferable. As common practice in these cases the author gives strophanthus through the day with a dose of agurin night and morning. Even in these cases, however, when the pulse tension is low, digitalis is demanded, and there should be no hesitation in giving it to an aortic case when the mitral valve has yielded. Trousseau's diuretic wine is a good remedy in similar cases. When digitalis cannot be taken by the mouth, the hypodermic use of digitalin will often start the case on the way to convalescence. Of course, in some cases edematous fluid will have to be removed by instrumental pressure; this especially applies to the accumulations in the serous cavities. Dyspnea is often improved by the use of atropine and strychnine hypodermically. The sinking sensation so often complained of by cardiac patients in the later stages can be alleviated by the exhibition of solid opium or neat brandy.

INEBRIETY AND ITS TREATMENT.

In the *Lancet* of August 6, 1904, JONES writes as follows on this subject:

The treatment resolves itself into the general treatment of drunkenness and that of the individual. As to the latter it is either in their own homes or in retreats. In both cases it is certain that alcohol should be cut off completely, and in the great majority of cases, indeed with but few exceptions, the total and sudden deprivation of alcohol is beneficial. In the few exceptions collapse results from sudden withdrawal of stimulants, and this needs careful watching, for in cases complicated with insanity pneumonia is not an uncommon complication. This pneumonia fails to undergo resolution, and it ends in phthisis, with death probably within the year. Sleep and nourishment form the key-note of treatment; sleep is best obtained by gentle outdoor exercise, failing this by bromides —but not by morphine, as the latter may initiate a new craving. The great motor restlessness so often seen in alcoholic cases, and caused by painful visual and aural hallucinations, is best controlled by hyoscine in doses of from 1/120 to 1/60 of a grain administered hypodermically. Sulphonal and trional (20 grains twice or three times a day) are also useful, but they increase the muscular incoördination, and as the solubility of these drugs is limited they may disturb digestion and give rise to gastroenteric catarrh. When the pulse is weak, and in the case of elderly persons, paraldehyde in drachm

doses is a safe sedative stimulant. It is necessary to watch for retention of urine when patients are under the influence of sedatives, and it is also important to notice twitching of the muscles, which may indicate uremia, although convulsions may be due to causes other than alcohol, such as diabetes, or epilepsy, or cerebral hemorrhage.

As to feeding, simple, easily assimilable food—peptonized if necessary and a little at a time—should be administered. The general disturbance of the digestive system, marked by loss of appetite, sickness, or vomiting, often tends to make the taking of food repulsive. In these circumstances ice, effervescing mixtures, salines, bismuth, or lime-water may be useful. The bowels should be carefully attended to, and saline aperients taken freely to correct the dyspepsia and improve the appetite, which can often be stimulated by nux vomica, pepsin, dilute acids, or strychnine and bitter tonics. When bedridden the greatest attention must be given to cleanliness and the prevention of bed-sores, for the tissues of alcoholic persons are peculiarly unresistive, and bed-sores once formed are most difficult to heal. For the cure of inebriety it is not believed that there is any drug that can be relied upon, and the secrecy of the various cures indicates their futility.

THE TREATMENT OF ACCIDENTAL HEMORRHAGE.

SIR ARTHUR MACAN'S valuable paper, read before the recent meeting of the British Medical Association, on the subject of accidental hemorrhage during pregnancy, and the discussion to which it led, may be said to point a moral and adorn a tale that will not perhaps be useless to the coming generations of English obstetricians. The tale is very similar to that related to the Obstetrical Society of London by Dr. Teacher, in his now classical paper on "Deciduoma Malignum," and its burden is that preconceived and settled ideas, when not supported by facts, hinder progress. The moral is, if we may express ourselves in the vulgar fashion, to beware of "cocksureness." Past students of the London medical schools will remember how a well known London writer on obstetrical subjects openly stated that he would "plough" any student who told him that in cases of accidental hemorrhage he would plug the vagina. Many of the same students went to Dublin to learn their midwifery in the Dublin maternity hospitals. They saw there the treatment which London had condemned adopted, with the result that the mortality of accidental hemorrhage, instead of being 40 to 60 per cent, as they had been taught, was something between 3 and 8 per cent, and they were confessedly puzzled. The question immediately occurred to them: Why should Professor So-and-So in London state that the mortality of accidental hemorrhage was 40 per cent, and that plugging would kill the patient, when in Dublin the mortality is inappreciable, and the vagina is always plugged?

This condition of affairs was the rule ten years and more ago, and yet it is but within the last year or two that the London obstetrical school has come to recognize that dogmatism and truth do not always go together. The London Obstetrical Society laid down that the tumor known as deciduoma malignum was nothing but a sarcoma of the uterus. As a result, the majority of English obstetricians and pathologists took no further interest in the growth. Everything was known about it; the Obstetrical Society had told them so. However, it was subsequently found that the Obstetrical Society had told them wrong. Similarly, with regard to the treatment of accidental hemorrhage, London opinion laid down three "laws:" that the student who suggested the plugging of the vagina would be "ploughed;" that the medical practitioner who used the plug would kill his patient; and that the plug would convert an external into an internal hemorrhage. The last two "laws" were proved to be wrong, but still the first remained, and as a result the spread of the knowledge of the treatment was delayed and many lives were sacrificed. At last a change came. The younger generations of obstetricians decided to think for themselves, and to cast off hereditary shackles by which they had been bound. The Obstetrical Section of the British Medical Association agreed to discuss the treatment of accidental hemorrhage. The chief active opponent of the treatment by plugging remained

away from the discussion; the chief passive opponent confessed that he had always thought well of the treatment, but out of regard for the examination prospects of his students he had refrained from mentioning it; and Sir Arthur Macan's paper was heartily accepted by the meeting.

It is to be hoped that as a result of the change of opinion the pendulum will not now swing too far in the opposite direction, and cases be treated by plugging for which such a treatment is unsuitable, and so discredit be brought on the method. Plugging the vagina is the best treatment that has as yet been suggested for cases of accidental hemorrhage in which the patient is not in labor, and in which the bleeding is external. It is a useless line of treatment in cases of severe concealed accidental hemorrhage, unless the uterine wall has commenced to react against a further increase in the uterine contents. It is an unnecessary line of treatment in cases in which the patient is in advanced labor and the uterine contractions are strong. As the present appears to be a favorable time for the upsetting of preconceived ideas, it is suggested that the supremacy of Marion Sims's position in gynecological examinations and operations should be attacked. It is believed that England is the only country which still adheres to this position, and the use of the more generally adopted dorsal position does not favor the occurrence of parametritis, as was recently stated by an English writer.—*Medical Press and Circular*, Aug. 17, 1904.

DISEASE OF THE THYROID, WITH AN ANALYSIS OF TWENTY-EIGHT CASES.

WEBSTER (*Brooklyn Medical Journal*, April, 1904) reports a series of thirteen cases of simple goitre treated surgically and three medically, and twelve cases of exophthalmic goitre, of which two were subjected to operation.

Of the cases of simple goitre there were four males and twelve females. The ages ran from nineteen to forty-nine years, both limits in women. With one exception all commenced under thirty and after twelve years, the average age being twenty-one. One patient died immediately after operation from hemorrhage and shock; one developed cachexia strumipriva, which later yielded to treatment; the rest recovered. Of postoperative complications, nausea and vomiting was produced in two, difficulty in swallowing in one, and hoarseness in two.

The three cases treated medically are chiefly interesting from the failure of the thyroid extract to benefit the tumor in one, while in the other two complete cures resulted. Both responded promptly to thyroid treatment, with occasional courses of KI, the treatment being continued for three months in each case. This bears out the statements of Baumann and others that as high as sixty per cent of cures may be expected in young subjects treated by the thyroid method.

Of the cases of exopthalmic goitre, there were two men and ten women. The ages ranged from fourteen to fifty-four. Previous illness was present in every case. Scarlet fever is specified three times, rheumatism twice, pulmonary disease twice, excessive masturbation once, spinal sclerosis once, severe fright once, repeated childbirth twice, chronic diarrhea once. Menstrual disturbances with tendency to diminished flow are noted in six of the twelve.

Of objective symptoms a goitre was present in 10; pulsation or a bruit in 10; tachycardia in 10, 4 of whom were subject to nocturnal seizures of palpitation; evident dyspnea in 10; muscular tremors in 7; exophthalmos in 9; Stellwag's sign in 5; von Graef's sign in 2; nystagmus in 1; lacrimation and photophobia in 1; localized or general edema in 3. A coated tongue is noted in 7 of the cases, dryness of the throat in 1, hoarseness in 2. Pigmentation of the skin is noted once and erythema once. Excessive perspiration occurred in 5 cases, the opposite in 1.

Nervous symptoms, including hysterical outbreaks, restlessness, sleeplessness, terrors, paresthesias, pruritus, irritability, unreaonable excitement, exaggerated reflexes, and so on are noted in every instance.

Urinary symptoms are recorded in eight of the twelve. Of these, a trace of albumin was noted six times, casts three times, abnormal changes in density twice, presence of blood elements three times, and indican once.

The average pulse-rate is high; the

lowest recorded is 80, the highest 156; for the rest, 110 is a fair average. Temperature, on the other hand, ranges low. Respirations are recorded as above the average.

Of cardiac changes, murmurs of various sorts are recorded in six, enlargement as indicated by displaced heart twice, in one the action is recorded as rapid and tumultuous, and in three no changes were detected.

Two patients were subjected to partial ablation with beneficial results. The others uniformly received rest in bed, limited diet, and cardiac stimulants, of which digitalis and belladonna seem to have been most favorably regarded, with KI and thyroid as second choice.

Two of these patients died, one was not improved, and nine were benefited.

INTERMITTENT HYDROPS OF THE JOINTS.

In 1901 Brackett and Cotton were able to collect forty-three undoubted cases of intermittent hydrops of the joints. MARSH (*Lancet,* June 4, 1904) reports two cases of this affection which have come under his observation. The local condition consists of an effusion into the cavity of the joint. This may be small in amount, but in some cases the cavity is tensely distended so that there is considerable pain. The fluid removed from the knee-joint in one of the writer's cases was sterile, and apparently was merely diluted synovia. In a few instances, while there has been little or no effusion into the joint, the synovial membrane has been swollen and the surrounding tissues have been edematous. No case of suppuration or formation of adhesions suggesting inflammatory changes has been recorded. The joint most frequently involved is the knee. Often both knees are affected and are the only joints attacked. But all the large joints and even the lower-jaw joint and the joints of the spine may be concerned. The condition may be limited for some years to one particular joint, or several joints may be attacked simultaneously or alternately, or many joints may be attacked in succession. The attacks reach their height in the majority of cases in two days, and then subside in two days, so that they extend in all over four days. Yet the attacks may be much shorter. The time of recurrence of the attacks varies widely in different cases. In one case the attacks recurred every evening. In some an attack takes place every third or fourth day; in some only once every month. In two cases there was an interval of three months. The period of recurrence most commonly observed is between the ninth and fifteenth day. In some cases the period changes. In one it changed from the thirtieth to the ninth day. In another from three months to eleven days. The affection is slightly more common in the female sex. As to age, although a doubtful case has been reported in a girl aged nine years, only three cases began as early as the fifteenth year. One patient was fifty-four years old. The affection most commonly begins about the twenty-sixth year. In a few instances the attacks have corresponded with the menstrual periods.

At present nothing definite is known as to the pathology of these cases. Treatment to a certain extent is symptomatic. Quinine and arsenic have cured a certain number of cases, and both have failed in other instances. The writer recommends giving quinine as the first step, and if it fails give arsenic, and continue it, if need be, over a period of weeks or months.

No local treatment has given any definite results. During the attacks the joints must be kept at rest as the patient is unable to use them, but rest seems to have no effect in preventing or materially modifying the attacks.

GRANULATING WOUNDS TREATED BY BORIC ACID AND RUBBER TISSUE DRESSINGS.

SCHLEY (*Medical Record,* June 4, 1904) secures the rapid epidermization of extensive, exuberant, or freely granulating surfaces by covering them abundantly with finely powered boric acid. This is covered smoothly with rubber tissue, overlapping the edges of the ulcer by an inch or two, and held in place by adhesive plaster strapping. Absorbent gauze covers the tissue, again overlapping its edges, and a snug supporting bandage completes the dressing.

The dressings are rarely changed oftener than once in five days, usually once a

week, and occasionally the interval is longer.

The dressing is not a dry one, the rubber tissue preventing evaporation. The total wound discharge with the boric acid is less. It causes more rapid epidermization than any other method except skin-grafting. It has not been employed upon ulcers with gangrenous or sloughing bases, or extensively upon larger indolent ulcers without or with scanty granulating surfaces. Upon some smaller ulcers of this class it has worked very well. For burned areas and varicose ulcers of the leg this dressing cannot be too highly recommended.

TETANUS TREATED BY INTRANEURAL INJECTIONS OF ANTITOXIN.

Tetanus toxin exerts its effect entirely upon the cells of the central nervous system, particularly those of the spinal cord. Apparently the toxin ordinarily can reach the spinal ganglia only through the motor nerves, and it enters these only through the terminal muscle-end apparatus. Even when the toxin is placed directly beneath the dura of the spinal cord, provided the integrity of the nervous tissue is not disturbed, its course to the cells in the cord is through the lymph and then the blood, and so to the periphery, and thence up the nerves before any of the usual results occur.

To traverse a nerve from its end to its origin in the cord takes several days, and the longer the nerve the more time required before the symptoms of poisoning appear. Injection of the toxin directly into the substance of the cord causes tetanus within a few hours. Furthermore the toxin seems incapable of traveling in any but the motor nerves, and in these only centripetally. The antitoxin pursues exactly the same course. This suggests injection of antitoxin into the nerves which the toxin must traverse to reach the cord itself. Experimentally this seems to succeed perfectly, and at the same time the failures in the use of antitoxin are made plain. When the microorganisms can be demonstrated within a short time after the receipt of the injury and the antitoxin can be given subcutaneously or intravenously before the appearance of any symptoms, success with this treatment has been reasonably certain. The antitoxin enters the nerves ahead of or with the toxin and prevents the intoxication.

After the development of symptoms, subcutaneous, intravenous, or intracerebral inoculations with antitoxin are manifestly useless.

For a patient already giving symptoms it seems reasonable to ROGERS (*Medical Record,* May 21, 1904), in the light of this knowledge, to expose the nerves of the part in which the primary infection lies as near the cord as possible, and to inject the antitoxin into the substance of each nerve. This will prevent the absorption of more toxin. Then the antitoxin should be injected into the spinal cord low down, or in several places, to "head off," so to speak, the toxin which must have entered the blood, and so be carried to all the other motor nerve-endings in the body. A single high injection in the cervical cord would be not only dangerous but useless, as the toxin apparently cannot diffuse in a centrifugal direction, and the antitoxin seems to follow the same law. As the experiments show that the most minute abrasion of nervous tissue is sufficient for the entrance of the toxin, the usual lumbar puncture offers a reasonably safe and certain method of obtaining the desired result. The point of a needle introduced dorsally in the third or fourth lumbar interspace should scratch one or more of the nerves in the cauda equina, and so afford the necessary means of ingress for the antitoxin. Meyer and Ransom report a case which seems to have recovered by following this method of treatment.

The writer reports a case of tetanus in a boy twelve years of age who developed symptoms fourteen days after the receipt of a shot wound in the palm of the hand. Two days later the lower end of the brachial plexus was exposed in the axilla, and the inner and outer heads of the median nerve and the trunks of the ulnar, musculospiral, musculocutaneous, and circumflex nerves identified without much difficulty. Into the center of each of these five to ten minims of antitoxin was injected. A needle was then introduced between the third and fourth lumbar vertebræ, the needle being partially withdrawn and reinserted two or three times

in an effort to scratch the cauda equina, and a dose of one hundred and thirty minims of antitoxin was injected subdurally. There was a very marked change for the better, but symptoms of tetanus persisted the following day, when five minims of antitoxin was injected into the median nerve, sixty minims into the loose cellular tissue around the nerves in the axilla, and one hundred and sixty minims into the subdural space by lumbar puncture. Nearly all the symptoms disappeared during the succeeding twenty-four hours. In addition to appropriate local treatment, the boy received by rectal injection four doses, each consisting of 15 grains of chloral hydrate and 30 grains of sodium bromide.

The writer describes this case as one of the "delayed acute" type, which in his experience are almost if not wholly as fatal as the ordinary acute forms of the infection. The patient left the hospital perfectly well at the end of twenty days. Absolutely no ill results were noted as a result of injecting the antitoxin into the nerve trunks.

POSTPARTUM HEMORRHAGE.

In treating postpartum hemorrhage FRITSCH (quoted in *Canadian Practitioner and Review,* June, 1904) does not waste any time in trying useless methods. Prophylaxis consists in proper management of the third stage of labor. If the uterus is squeezed or massaged directly after the child is born the placenta partially separates, the uterus is unable to contract evenly, and hemorrhage is inevitable. When after-pains occur, the fundus may be gently rubbed for ten or twenty minutes after delivery. It is remarkable that in no reported case in which the uterus has not been touched, as in concealment of birth, has the mother died of postpartum hemorrhage. But if from any cause there has been hemorrhage, the uterus becomes atonic. Probably hemorrhage is more often the cause of atony than the result.

In cases of atony in which the woman is perhaps already pulseless the following procedure is safe and certain: The accumulation of blood in the uterine cavity is expressed, and the hands are passed between the recti, which are pushed aside easily so as to reach the back of the uterus, which is raised as high as possible, forcibly anteflexed, and compressed against the superior and posterior surfaces of the pubes. The internal os then lies exactly above the pubic portion of the iliopectineal line. The abdominal walls immediately after delivery are easily forced behind the uterus as deeply as the pelvic brim. The resulting funnel-shaped pouch of skin and muscle is firmly plugged with folded towels, linen, or large pads of cotton-wool, until the uterus is immovably fixed against the anterior abdominal wall and the pubes. A roller bandage is applied over the padding, forcing it behind the uterus toward the pelvic inlet. The body of the uterus then lies above and in front of the symphysis pubis. The method has the following advantages:

1. By compression of the abdominal cavity blood is retained in the upper half of the body even more effectually than by direct compression of the abdominal aorta and bandaging the legs.

2. Hemorrhage is impossible, as the uterine walls are so pressed together that the uterine cavity is obliterated.

3. Hemostasis is immediate. If the uterine cavity is plugged large quantities of blood escape during the operation and are absorbed by the tampon itself.

4. No time is lost in disinfecting the hands, as no internal manipulations are required.

5. The pad once in place, no further disturbance of the patient is necessary, and there are no uterine plugs to be removed.

ROUTINE APPENDECTOMY AS A COINCIDENT PART OF OTHER ABDOMINAL OPERATIONS.

CLARK (*American Journal of Obstetrics,* May, 1904) has removed the vermiform appendix in one hundred and twenty celiotomy cases in which some other disease formed the primary basis for operation. In 25 of these cases the appendix was normal; in 39 there was periappendicitis; in 18 (15 mild, 3 chronic), catarrhal appendicitis; in 13, chronic appendicitis; in 7, acute appendicitis; in 2, hyperplasia of lymphoid elements in appendix; in 5, fecal concretions in appendix; in 1, intestinal appendicitis; in 1, primary carcinoma of

appendix; in 1, atrophy of mucosa; and in 1, constriction due to previous catarrhal disease.

In this series of one hundred and twenty cases only one patient died, and this death came from causes in no way attributable to the operation upon the appendix. With intelligent patients, the question of whether or not the appendix is to be removed should be left to their decision. In the less intelligent class, where the surgeon's judgment must be the guide, the best interests of the patient will be subserved by the removal of the appendix.

When operating through a median incision, either one of two plans may be instituted for quickly locating the appendix. The acute angle of the ileum at its junction with the cæcum is usually the best guide when the attempt to locate the appendix by touch is made. With the finger hooked beneath the cæcum it is swept around this organ to the ileum, which is lightly grasped, thus drawing the cæcum up into the wound, which at once brings to view the anterior longitudinal band, and this unerringly guides to the appendix. When the cæcum is anchored by adhesions this maneuver may not be successful, and then the abdominal incision is lightly lifted upward with the retractor, when the cæcum may be located by sight, and with blunt forceps gently drawn forward into the wound.

SUPRAPUBIC PROSTATECTOMY UNDER NITROUS OXIDE ANESTHESIA.

The chief contraindications to the performance of prostatectomy until recently have been the dangers resulting from, first, the general anesthetic; secondly, hemorrhage; thirdly, shock. By the use of laughing-gas the great objection of a general anesthetic is at once removed. If, in addition, rapid work is done, then all three of the objections are removed. A prostatectomy done under nitrous oxide in from eight to fifteen minutes is not accompanied by any dangers from the anesthetic; the hemorrhage is very moderate and there is no shock. The patients are conscious even before the dressings have been applied. There is no vomiting, the pulse remains normal, and in a few minutes fluids are taken by mouth.

The patient is allowed to hold his urine for about twelve hours, and comes to operation with a distended bladder. With the patient in a moderate Trendelenburg position, a small incision is made above the symphysis pubis in the median line. The incision is deepened either between the two recti muscles or through the fibers of one rectus. Two silk guide sutures are introduced into the wall of the bladder, and the viscus opened by a small incision in the median line. The interior of the bladder is rapidly explored by the finger, the size and relations of the prostate ascertained, and any calculi that may be present removed. With a long, curved scissors, slipped along the index-finger of the left hand as a guide, the mucous membrane over the prostate is incised. The incision is made over the most prominent portion of the prostate, not more than half an inch long—just large enough to admit the tip of the index-finger. The incision may be anterior, posterior, or lateral to the urethral opening. If the prostate is deeply seated, it is pulled upward into the bladder by means of a special vulsellum forceps. If necessary, an assistant can press upward on the perineum and in that way push the prostate further into the bladder, but usually this is not necessary. Up to this point there is little or no bleeding. The more rapidly the operation is now concluded, the less hemorrhage there will be. The entire prostate is shelled out of its capsule by the use of the index and middle fingers, first of one hand and then of the other. The writer has been accustomed to freeing the gland on the right side and posteriorly with the right hand. Then, by turning his back to the field of operation and introducing the left hand, the left side and anterior portions of the gland are freed. The *sine qua non* of this step of the operation is to work between the capsule of the gland and the gland proper; there is then no danger of wounding neighboring structures. As soon as the gland has been removed, a rapid examination is made with the finger to ascertain if any portion of the gland has been left behind. Without any irrigation of the bladder, a strip of plain sterile gauze is packed firmly against the raw surface left by the removal of the prostate. Continuous bladder drainage immediately after the operation. The packing that was introduced into the blad-

der at the time of operation is removed at the end of twenty-four hours, and thereafter no packings are employed. During the first two or three weeks the bladder should be irrigated twice daily. A urinary antiseptic should be administered continuously, and the urine always should be kept acid. The patient is allowed to sit up out of bed on the fourth or fifth day after operation, and a few days later is allowed to walk about his room. The healing of the suprapubic wound is hastened by keeping it well strapped with zinc oxide plaster. As the wound contracts a smaller tube is introduced into the bladder. As soon as no more shreds of necrotic tissue appear in the urine, the tube can be left out, and the wound may be allowed to close. Two and a half to three weeks may be considered the usual time. A sound ought to be passed three weeks after the operation, and thereafter regularly once a week for three or four weeks longer.

The writer has operated on six cases. The youngest of his patients was fifty-seven years old, and the oldest eighty-two years. The average was sixty-nine years. Four of the cases had complete retention, which, in one case, had persisted for five years. In only one case was the amount of residual urine small. All of the patients had been under medical treatment for a considerable time before operation. The only case in this series that did not get a perfect result was one in which this sounding was omitted, and a stricture of the prostatic urethra resulted. This can and should be avoided in every case by passing a sound once a week after the third week.

POSTERIOR PERFORATIONS OF THE DUODENUM—TREATMENT.

Jeannel has recently collected 35 cases of injury to the duodenum. He calls attention to the comparative frequency of complete tearing off of the duodenum; there were 5 cases—3 close to the pylorus, and 2 at the juncture of the duodenum and the jejunum. This is explained by the fact that at these two points a freely movable part of the bowel joins a fixed portion. The incomplete ruptures are found at the lower half of the duodenum. Among twenty cases of incomplete rupture, the superior part was involved in 2 cases; at the level of the papilla of Vater in 4; below this, but still in the descending part, in 3; and in the inferior portion in 7. The site of the lesion was found 14 times through the anterior peritoneal-covered surface, and only 6 times through the posterior wall. In all of these cases except one, the direction of the rupture was at right angles with the long axis of the bowel. The length of the tears varied from the very smallest to those involving two-thirds of the circumference.

In looking up the subject of gunshot wounds of the duodenum, SUMMERS (*Annals of Surgery*, May, 1904) found only one case: this wound involved the first part of the duodenum and was operated upon successfully.

By cutting perpendicularly through the peritoneum about 3 centimetres to the right of the descending portion of the duodenum and insinuating the finger behind and toward the left, the descending portion of the duodenum and its lower flexure can be lifted out of the bed of loose cellular tissue formed by the fusion of the right mesoduodenum and the primitive parietal peritoneum. This movement exposes the posterior surface of the duodenum and admits of its repair. Kocher says: "The relations of the blood-vessels determine the limit of the rotation and the lifting forward of the bowel. The concave left-sided commencement of the duodenum is supplied with blood by the gastro-epiploica dextra, the chief branch of the gastroduodenalis. Important branches also go to the transverse colon over the inferior portion of the duodenum. These vessels lie under the upper layer of the gastrocolic ligament, and offer in themselves little hindrance to the lifting up of the inferior part of the duodenum from the spinal column.

"If the colon is raised there is exposed the colica dextra, the large branch of the superior mesenteric. The artery runs horizontally from left to right, and the branches pass down the duodenum to the lower and lateral circumference and to the right flexure of the colon. These vessels are not so easily lifted toward the left as those of the gastro-epiploica dextra, but they do not prohibit the freeing of the inferior flexure of the duodenum so that the whole vertical portion or limb may be loosened and brought forward. The rota-

tion is made with the hepaticoduodenal ligament above as a fixed point and a continuation downward of the left border of the duodenum over the head of the pancreas as an axis. The lower fixed point is determined by the location of the branches of the colica dextra, which limit the rotation and lifting up of the inferior flexure and a portion of the lower duodenum."

In case of the perforation of the posterior wall of the duodenum, in addition to repairing the duodenal wound or wounds, the pylorus should be occluded by means of a purse-string suture. Either at this same operation or as soon thereafter as reaction occurs, a gastroenterostomy must be made. None of these procedures require much time nor handling of the intra-abdominal contents; they are the only rational methods of treating a perforation of the posterior wall of the duodenum. It is almost impossible for a gunshot wound of either the stomach or duodenum, which perforates both walls, to be limited to those organs; therefore, in addition to the repair of any intraperitoneal organs involved, proper incisions must be made to provide for retroperitoneal drainage.

SIALOLITHIASIS.

Sialolithiasis is relatively infrequent. In 1896 Fütterer was able to collect 160 cases, and ROBERG (*Annals of Surgery*, May, 1904) has collected 47 cases occurring since that time.

Calculi occur most often between the ages of twenty and forty years. Burdel reports a case of calculus in the sublingual duct of a child aged three weeks. There had been difficulty in nursing, and it is reasonable to conclude that it had existed at the time of birth. Men are more often affected than women. Czygan gives the proportion of two to one. Another writer gives five to one.

Calculi vary in size from that of a grain of sand to 1⅛ inches in length and 2 inches in circumference, but the usual size is from that of a split pea to that of a date-stone or hazelnut. Though usually single, in 47 cases collected by the writer there was more than one in 7 cases. A large number of small concretions may be discharged from the duct, as in Spencer's case, in which the submaxillary gland also was filled with miliary calculi. Recurrence takes place in a small percentage of cases. Of the 47 there were 5 with recurrence. One had 3 in 22 years; one, 2; and two, 1 recurrence.

In shape the calculi are usually spherical or oval. In the ducts they often become elongated and resemble date-stones, and when multiple they are arranged end to end, the opposed surfaces being faceted. The surface is finely or coarsely granular and the color is a dirty yellowish-gray. Usually the structure and composition are homogeneous, though there are numerous exceptions. They are made up mostly of calcium phosphate and calcium carbonate. Foreign bodies have been found as a nucleus in only a small percentage of cases, and are found in the ducts more frequently without the production of calculi.

Galippe has made cultures from the interior of the calculi and has found bacteria in all cases. Hartmann also has found bacteria in smears and cultures.

The symptoms of salivary calculus are determined by the size of the calculus, its location, and the occurrence of suppuration. In the absence of the latter a calculus may exist for years without much disturbance. There are cases on record in which they have existed for 14, 28, and even 40 years. Usually the earliest symptom of calculus in Wharton's duct is "salivary colic," characterized by intermittent retention of saliva and accompanied by more or less pain and discomfort. Salivary retention, with the formation of a swelling in the floor of the mouth and in the submaxillary region, usually comes on when the patient is eating, remains for one or several hours, and disappears gradually; or it may be made to disappear by pressing upon it, thus expressing the retained saliva into the mouth. This swelling may come and go for years, until suppuration occurs, when the swelling becomes more or less permanent. The retention is not determined entirely by the size of the calculus.

The patient may be aware of the presence of a hard nodule in the mouth. There is usually some difficulty in chewing, swallowing, and speaking; at times

chewing and swallowing may be almost impossible, and it may be difficult to open the mouth. The swelling in the floor of the mouth may reach to the cutting edge of the teeth. Freudenthal reports a case in which the abscess became so large that death resulted from asphyxiation. The abscess frequently bursts in the mouth, often discharging the calculus. If only one calculus has been present, a cure results. Sometimes the stone causes a pressure necrosis of the overlying tissues, escaping through the opening thus made. In rare cases the calculus may be discharged through the normal orifice of the duct. With suppuration in the duct there is usually infection, and painful enlargement of the submaxillary gland.

When the calculus occurs in the submaxillary gland, the gland enlarges and becomes firm in consistency and tender to palpation, increasing slowly in size. There are periods when the gland swells acutely and becomes very painful, to subside again to its former condition. Eventually a suppurative cellulitis of the neck may supervene, and a diffuse phlegmon involving the greater part of the side of the neck and face may develop, resembling a case of Ludwig's angina. Even this may subside, to return at a later date. If not opened it may burst spontaneously. In some cases a fistula results, discharging pus and concretions.

In twenty-seven cases of fistula of Stenson's duct discharging saliva, as given by Duplay and Reclus, three were caused by calculi. Roberg has not found a salivary fistula of the other ducts or glands caused by calculi.

The constitutional effects of salivary calculi are usually slight.

The calculus can often be detected by sounding the duct; and Gerota reports a case of calculus in the submaxillary gland which was detected by the *x*-ray.

The indications for treatment are to evacuate the abscess, remove the calculus, and in some cases to extirpate the gland. When a stone is located in the duct it should be removed through the mouth, though this may be impossible when the stone is situated in Stenson's duct. Solé removed six calculi from Stenson's duct from the outside, suturing the duct, and obtaining healing by primary intention. If a gland has been the seat of infection secondary to a calculus in the duct, even for a long time, the enlarged gland becomes normal in size in from one to two weeks after the removal of the calculus.

If the submaxillary or the sublingual gland is thought to be the seat of a calculus, it must be reached from the outside. After exposure of the gland it is incised. If a single calculus is found and the gland not much changed, the calculus can be removed and the gland left. If the calculi are multiple and difficult to remove, or the gland is the seat of miliary abscesses, it is well to extirpate it.

In case of calculus of the parotid gland, incision, removal of the calculus, and drainage are all that can be done.

IODIZED CATGUT.

BINNEY (*Boston Medical and Surgical Journal*, May 12, 1904) finds that catgut prepared by Claudius's method is superior to other catgut because (1) it is invariably sterile; (2) it is absorbed readily by the tissues; (3) the ease and simplicity of its preparation enable the surgeon to prepare his own sutures with minimum trouble; (4) it is comparatively cheap.

This method consists of placing raw catgut wound on glass spools directly into a solution of iodine 1 part, potassium iodide 1 part, water 100 parts. This is made by dissolving the potassium iodide in a small amount of water, to which the pulverized iodine is added, then diluting with water to the above strength. Through the action of the iodine solution the gut becomes black in color, completely sterile, antiseptic, pliable, and easy to tie. The bottle is labeled and dated, and after eight days the gut is ready for use and may be kept in the same solution and bottle. Careful experiments have shown that after eight days the gut invariably becomes sterile. Immediately before using, Claudius recommends rinsing the gut in a three-per-cent aqueous solution of carbolic acid (or any sterile fluid) to remove the surplus of iodine solution. Better results, however, are obtained by rinsing the iodized catgut in 95-per-cent alcohol, to remove the superfluous water, then storing the gut in a solution of biniodide of mercury 1 part, 95-per-cent al-

cohol 1000 parts, glycerin 20 parts. Gut preserved in this solution retains the iodine well, and is stronger than that preserved in watery solutions. The fluid, being antiseptic, permits the return to the bottle without resterilization of any unsoiled catgut not used during the operation. Soiled gut may be used safely after resterilizing in the iodine solution.

The longer the gut has been kept in the solution of mercuric biniodide, the stronger it appears to become, and for this reason the gut which has been but recently sterilized may be found of insufficient strength. If, however, the spools are allowed to stand in the air before using for fifteen minutes or more, the gut becomes very strong, and of a convenient consistency for tying. The suture material should be removed from the solution at the beginning of the operation. Then it should be unwound from the spools and cut into convenient lengths, laid on the instrument table, and covered with a sterile towel. The above procedure gives most satisfactory results.

The preserving solution of biniodide of mercury is stable and has no unfavorable action on the catgut, which may therefore be used safely after keeping a long time. In several cases gut which had stood for two months was used and found thoroughly satisfactory.

SKIN-GRAFTING OF INFECTED AREAS.

To render the septic area aseptic is the whole secret of success in preparing an infected raw surface for the immediate application of Thiersch's grafts, and lessening the time required for effecting a cure.

WILCOX (*Annals of Surgery,* May, 1904) recommends that the night before the operation the ulcerating and surrounding area should be cleansed as thoroughly as possible with green soap and hydrogen peroxide to remove the dried crusts and débris from the granulations. In case of very foul varicose ulcers more time may be taken, and a compress wet with 50-per-cent solution of peroxide may be applied for a few days until the exudate is removed.

After cleansing, the raw surface is covered with a compress saturated with a one-per-cent solution of formaldehyde (the ordinary 40-per-cent pharmaceutical preparation being the unit), and this compress is allowed to remain in place until the patient is on the operating table. When the compress is removed it will be found that the granulation layer is dark-red in color, having an appearance much like smoked beef. This layer is about a quarter of an inch in depth, is friable, and can be scraped off easily with a sharp spoon from the underlying tissue, which is whitish and bleeds very little. The removal of the granulation layer should be thorough, and any oozing can be stopped by the application of an Esmarch rubber bandage for a few minutes. The use of the rubber is a valuable aid in the operation as it makes equable compression and does not stick to the tissues when removed, but leaves an ideal surface for skin-grafting.

The remainder of the operation is the ordinary one for the application of Thiersch's grafts, the after-treatment being the same. As a rule, at the first dressing, three or four days after the operation, the grafts are found adherent and in good order. The dressings should be done every two or three days until the healing process is complete.

Large granulating surfaces resulting from burns by molten metal, the cutaneous defect after excision of the breast, and a varicose ulcer the size of an adult hand, have been completely healed in a little over two weeks, with perfect success.

INJURIES TO THE AXILLARY VESSELS DURING OPERATIONS FOR CARCINOMA OF THE BREAST.

SMITH (*Annals of Surgery,* May, 1904) communicated with various American surgeons relative to their experience with injuries of the axillary vessels inflicted during operation for carcinoma of the breast. He received replies from 71, 44 of whom had never injured the axillary vessels, and 27 of whom reported one or more cases.

Sixty-three cases of injury to the vein are reported. In no case did permanently bad results follow injury to the vein, whether the vein was partially or wholly occluded with the ligature or forceps. In some cases an edema of the arm is re-

ported; this is usually of slight degree and transient. Air embolism did not occur, nor did any septic trouble arise from the resulting thrombosis of the vein.

The cause of injury seems commonly to have been due to more or less extensive adhesions between cancerous lymphatic glands and the wall of the vein, making an injury to the vein an easy or unavoidable consequence. Where such a condition is found, Gerster states that he never dissects away such glands, but prefers to excise the adherent portion of the vein after double ligation. This plan was carried out by several others. A considerable number of cases occurred during a second operation for recurrence. Actual occlusion of the vein was often deliberate and made necessary by the extent of the disease. Slight injuries occurred accidentally; pricking of the vein wall with a needle was reported frequently; and tearing of the vein wall was common. Tearing away one of the branches of the vein was also a common occurrence.

In order to prevent injury to the vein, a very free exposure is commonly advised and practiced. Great care in manipulation while removing the axillary contents, especially where glands are extensively involved and adherent, is imperative.

Where the injury was slight an attempt was always made to apply some form of lateral ligature or forceps. The vein was either picked up with a forceps and a lateral ligature applied on a needle or otherwise, or a running suture was made. Marcy lays considerable stress on the use of fine kangaroo tendon, leaving the inner surface of the vein smooth. He has applied this method to the common iliac and twice to the femoral, and has always had good results, the circulation being undisturbed. By others both catgut and silk have been employed, apparently with equally good results. A forceps left on for forty-eight hours was used by Deaver, Henrotin, Stone, and Park. When actual occlusion was necessary, a ligature was simply thrown around the vein above and below and tied; the intervening portion sometimes was cut away with the diseased tissue.

Injuries to the artery are much rarer than those to the vein. This undoubtedly is due to the less exposed position of this vessel, the strength of its walls, and its easy detection while working near it. As with the vein, the injury may be so slight as to suggest closing the defect without occluding the lumen, or it may be such as to demand ligation of the artery. In none of three cases occurring during the operation for cancer of the breast, nor in two cases undertaken for other purposes, was there serious disturbance of the circulation.

As to injuries of the artery, the material is too meager to allow of definite conclusions. There was no permanent bad result in the five cases reported. Artificial heat during reëstablishment of circulation seemed necessary in the cases where the artery was occluded.

CALCULUS IN THE URETER—CONCLUSIONS BASED ON A STUDY OF ONE HUNDRED AND THIRTY-FOUR CASES.

Three new cases of calculus in the ureter are reported by TENNEY (*Boston Medical and Surgical Journal*, Feb. 4, 1904), making a total of one hundred and thirty-four recorded. From his study of these cases and their histories, Tenney arrives at some interesting conclusions.

Intermittent pain on one side, with varying amounts of red blood in the urine, are constant symptoms of stone in the ureter. Though the best means of locating stones, the *x*-ray cannot yet give evidence sufficient in itself to warrant operating or refusal of operation on certain cases. If a calculus starts from kidney to bladder, it is likely to catch within an inch of one of three places, all of which are accessible to the surgeon through extraperitoneal openings. The first point of narrowing is about 7 centimeters down, the second just above or below the brim of the pelvis, and the third as the ureter enters the bladder wall. A single calculus is the rule, but the exception occurs, according to these cases, about once in eight times. The opening in the ureter or kidney pelvis for removal of the calculus should be sutured if possible. Both sorts of suture materials have been used with equally good results, and wounds in both locations apparently heal equally well. The recovery is only delayed if sutures

are not used. A calculus in the ureter is a menace not only to health but to life, and its removal is an operation of low mortality, provided it is undertaken before secondary changes appear in the kidneys.

As to the choice of operation, there are several things to consider. The transperitoneal route gives access to all parts of the ureter; it does not give opportunity for complete examination of the kidney or renal pelvis, and it does open the abdominal cavity to an extra source of infection. It has been but little used, and is partially responsible for one death. Only one writer argues in favor of this route, but neither his argument nor his figures are convincing.

On the other hand, the kidney and the whole extent of the ureter, including that portion which is in contact with the bladder, are quite as accessible extra-peritoneally as through the abdominal route.

According to the figures of the 134 cases, the operator may expect to find the stone within an inch of one of three definite points, but he should not only make sure of the removal of one stone, but demonstrate the absence of others which might cause trouble later.

If a patient is sick enough to call for operation, and especially if operation is decided upon during the earlier attacks of colic, the kidney and its pelvis should be thoroughly explored, and the same incision which exposes them makes the first point of narrowing in the ureter accessible. If nothing abnormal be found, through this incision, a full-sized ureteral bougie should be passed into the bladder. If obstruction be found, or if it seems desirable to follow the ureter down with the fingers, the incision may be extended, as advocated by Israel, Morris, and others, forward and downward to the outer border of the rectus muscle two inches above the pubes, and this incision may be carried straight through all the muscular layers down to the peritoneal fat in which the ureter lies. This cut is from twelve to twenty inches long, and crosses the upper half of the external oblique and upper two-thirds of the internal oblique and transversalis at right angles to their fibers. It must weaken the wall, and in one case at least has resulted in a hernia.

The other method is to make a new incision entirely separate from the one which exposes the kidney. This incision should correspond to the lower end of the long cut before described, and the center of the incision should come over the point where the ureter crosses the iliac artery.

After going through the skin the muscular layers can be separated by dissection between their fibers, and the ureter can be identified by gently twitching it from above. Once found, it is easily separated from the peritoneum, and the fingers passed through the upper incision can meet the fingers passed in through the lower. The ureter can now be traced along the wall of the pelvis and down to the point where it enters the bladder wall.

Some advise pushing the stone down into the bladder, but the small size of this constriction as compared with the upper isthmuses makes this suggestion difficult if not dangerous to carry out unless the orifice be already dilated. There is so little danger in taking the calculus through the ureteral wall that it seems wiser to remove it directly, with as little manipulation as possible, provided it cannot be easily pushed up to the most accessible point.

Extra-peritoneal ureterotomy has been done thirty-four times, with five deaths. Three of the five were suffering from anuria when operated; one showed cystic kidneys at autopsy; and the fifth had a dilated and fatty heart.

RENAL REDECAPSULATION.

One invariable effect of renal decapsulation as observed in numerous experiments upon animals, as well as in the few reported autopsies after operation in man, is the formation of a new capsule proper, replacing the one removed at operation. The new capsule becomes fully organized in from three weeks to three months after operation; it may be thinner or thicker, but it is always more succulent and vascular than the original capsule.

EDEBOHLS (*Medical Record,* May 21, 1904) recently had occasion to decapsulate a second time the kidneys of a patient upon whom he had performed renal decapsulation two years previously. This is the first and so far the only instance in which renal redecapsulation has been performed. The patient was a man

aged twenty-six years, who had had albumin and casts in the urine for five years. He suffered from migraine and had slight edema of the feet, but otherwise was in fairly good health.

Decapsulation of both kidneys was performed May 1, 1902. The operative diagnosis was chronic interstitial nephritis with infection. For six months following operation the general condition was good. Thereafter the patient passed through several attacks of acute suppurative pyelitis. Finally on March 30, 1904, uremic convulsions supervened, followed by continuous coma and great swelling and discoloration of the face. Complete suppression of urine occurred. On the following day the patient was in a moribund condition, continuously unconscious, and frequently in convulsions, not a drop of urine having been secreted for thirty hours.

Less radical therapeutic measures having failed, redecapsulation of both kidneys was performed. The fatty capsules completely covered the kidneys, being adherent posteriorly to the scars of the former operation and anteriorly to the kidneys. The kidneys were found covered by a newly formed capsule proper, which was somewhat thinner and perhaps more transparent than the original capsule. It was peeled off from the entire kidney, and cut away as easily as at the first operation.

The uremia remained uninfluenced, and five hours after operation the patient died in uremic coma. The flow of urine, however, was started by the operation, although too late to be of any avail in saving life. During the last three hours of life the patient voided considerable quantities of urine.

Three points are particularly noteworthy in this case: (1) The nullification of the usual good effects of renal decapsulation by persistent chronic infection of the genito-urinary tract. (2) The immediate and normal fixation of both kidneys as a result simply of dropping the kidneys back into their fatty beds after decapsulation. (3) The prompt effect of decapsulation in relieving complete anuria.

Judging from the above solitary experience in the living, and from an additional observation in the dead-house, the removal of the new capsule presents no greater technical difficulties than the removal of the original renal capsule.

MUSCULOSPIRAL PARALYSIS TREATED BY TENDON TRANSPLANTATION.

In a boy, sixteen years of age, who had a complete paralysis of the musculospiral nerve, GRAY (*Lancet*, May 21, 1904) exposed the tendon of the flexor carpi ulnaris by a longitudinal incision over it, cut it across just above the pisiform bone, and detached a few of the lowest fibers of the muscular attachment to the ulna. He then made an oblique incision over the back of the forearm, reaching downward as far as the level of the wrist-joint, and separated out the common extensor tendons. A tunnel close to the ulna was made through the interosseous membrane, just above the upper border of the pronator quadratus, a forceps was passed through this from back to front, and the tendon of the flexor carpi ulnaris was pulled through. Hyperextension of the fingers and wrist was made, the extensor tendons were cut across just above the level of the wrist-joint, and the distal parts were sutured to the end of the flexor carpi ulnaris tendon. The wounds were closed, and the elbow-joint, forearm, and hand were enveloped in plaster of Paris, the wrist and fingers being fixed in the hyperextended position with the elbow flexed.

At the end of three weeks after the operation, when the dressings were removed, the wounds were healed, and it was found that after having his fingers flexed the boy was able to extend them immediately to the full extent. Supination is performed easily and strongly. When at rest the thumb lies flexed in the palm.

The writer now proposes to transplant the tendon of the flexor carpi radialis through the interosseous space close to the radius and then attach to it the several tendons of the extensors of the thumb at different levels, so that extension of the proximal phalanx will be obtained slightly in advance of extension of the distal one. The latter procedure will increase still further the power of supination. By the above operation two comparatively useless muscles are made to fulfil very useful functions, and approximately normal movements will be the final result. Both transplantations may be made at the same sitting. Such an operation is superfluous where successful nerve suture can be done.

ORAL SURGERY—PREVENTION OF THE ASPIRATION OF BLOOD.

During operations in the mouth and nose under general anesthesia, HERZOG (*New York Medical Journal and Philadelphia Medical Journal,* May 28, 1904) guards against the aspiration of blood in a simple but effectual manner.

He intubates the patient and connects the intubation tube by means of a tightly fitting end-piece with a rubber tube, which is passed through the patient's nose. The inspired air or anesthetic is taken into the lungs through the rubber tube.

The necessary armamentarium consists of an intubation set, a laryngeal forceps, the "end-piece" consisting of a piece of tapering oval tubing which fits tightly but easily into the intubation tube, and a small plug, which may be used for the purpose of closing the end-piece.

The method of procedure is as follows: After intubating the patient, insert the plug into the end-piece, so as to occlude it and prevent it from becoming clogged with nasal mucus. Pass the rubber tubing, to which the end-piece is firmly wired, end-piece first, through the nose, and when it shows behind the soft palate take hold of it by means of a forceps and extract the plug. Then take hold of the end-piece by means of a laryngeal forceps and insert firmly into the opening of the intubation cannula. Thus the larynx is occluded as safely as can be desired. The patient will breathe through the rubber tube, and the anesthetic can be administered in this way as easily as through the tracheotomy tube.

FACIAL TIC AND FACIAL SPASM.

French writers draw a sharp line of distinction based on clinical symptoms and prognosis, as well as on pathogenesis, between the two kinds of convulsive movements to which the terms "tic" and "spasm" are applied. Meige insists that the diagnosis of facial "spasm" can be made on purely objective clinical grounds.

MACKINTOSH (*Scottish Medical and Surgical Journal,* April, 1904) defines these terms as folows:

A *spasm* is the result of irritation at some point in a spinal or bulbospinal reflex arc—*i.e.,* there is always some material cause of irritation, lying in the afferent tract or the center or the efferent tract.

A *tic* does not require any material cause of irritation in the reflex arc; it may have originally started as a motor response to a peripheral sensory irritation, but the cause may have been cortical stimulation, an "idea," from the first. By repetition, the convulsive movement soon becomes a habit, which continues, though the cause may disappear. This can happen only when the inhibitory power of the will is enfeebled, for the mental state of a person subject to tic makes him changeable, capricious, lacking in will-power, and at times impulsive.

The chief clinical points of distinction between facial tic and spasm are these:

1. Spasm begins locally and spreads more or less gradually so as to involve progressively fiber after fiber, or fasciculus after fasciculus of the same muscle, and one muscle after another; usually it starts as a slight quivering at the free border of the lower eyelid, gradually affecting both eyelids, so that the eye is half-closed. The spasm may stop here, but it is more usual for it to invade progressively the whole of the muscles of one-half of the face; it disappears in the same way, often rapidly, but not suddenly. In tic the movement is completed at once; it appears and disappears with equal suddenness.

2. Even in the severest degree of facial spasm, when there appears to be a permanent contracture of all the muscles of one side of the face, the contracture is never quite uniform; here and there portions of some muscles are relaxed, while other portions are in a violent state of spasm; one or more muscles may be affected *en masse,* but in others there are only fibrillary or fascicular contractions. In tic all the fibers of the affected muscles are involved equally; or, if only a part of a muscle contracts, it is because it has a different function from the other parts.

3. In spasm the affected part of the face is devoid of every known form of emotional expression; the muscular contractions show no trace of coördination for a definite act—*e.g.,* mimetic, as is seen in tic. Tic essentially represents a functional act—exaggerated, often perverted or even new, but still characteristic.

4. In spasm the convulsive phenomena are limited strictly to the region supplied by the facial nerve, and are essentially unilateral; occasionally there are some contractions, more or less transient and inconstant, of the muscles of the eyelids, on the other side of the face. In tic, other muscles functionally associated with those of the face are commonly implicated—*e.g.*, in tic of the eyelids, affection of the muscles of the eyes and neck. Tic is often bilateral, and this is the rule in tic of the eyelids, the two sides normally functionating together.

5. The patient by an effort of the will and attention always can exercise a more or less prolonged restraining influence on tic. It is almost impossible to prevent or modify spasm. No effort on the patient's part, and no psychical influence in the majority of cases, has the slightest effect on the spasm.

6. The mental state of the patient is of primary importance in tic (*vide supra*); it plays little or no part in spasm.

7. Spasm may appear or go on during sleep; tic never does.

8. Spasm may be accompanied by sensory, vasomotor, or trophic signs.

The affection known as "tic-douloureux" of the face is not a tic, but a spasm.

In spasm the prognosis depends upon the cause. Unless this can be removed, spasm obstinately resists all forms of treatment so often that one is fortunate to get amelioration. In tic everything is subordinate to the mental state of the patient. With proper treatment recovery is the rule.

The treatment of tic is methodical exercise of the muscles involved. The patient should be taught to control the involuntary movements, and at the same time he must learn to execute, at command, regular, slow, methodical movements of the muscles involved. This should be done at first under the eye of the physician, but must be repeated by the patient at home several times a day. Meige strongly advocates performing these home exercises before a mirror. He believes that, if taken in hand at the beginning, tic can be almost prevented in children by a parent who will pay enough attention and exercise sufficient firmness, for the result of this treatment is especially good in young patients.

Reviews.

A Text-book of Nervous Diseases and Psychiatry. By Charles L. Dana, A.M., M.D. Sixth Edition, Revised and Enlarged.
New York: William Wood & Co., 1904.

This book, which is perhaps the most popular of all American works on neurology, has deservedly reached its sixth edition. The present edition differs materially from its predecessor. In the first place much more space is devoted to the subject of disorders of the mind, and while the author is frank in stating that it is impossible, in the amount of space used in a small volume, to adequately consider the various types of insanity and mental derangement, he has endeavored to present a fairly exhaustive consideration of this branch of neurological practice, devoting twelve chapters to its consideration at the close of the volume. That portion of the book which deals with diseases of the nervous system other than the mind has undergone little change. The only point which we think worthy of regret in connection with this book is the fact that the character of the illustrations, so far as their execution is concerned, does not keep pace with the excellent quality of the text. Some improvement is noted in this respect over previous editions, but there is still room for betterment. We have always been surprised that a book of this character, emanating from the large clinical experience of its author, contained so few original illustrations. But, on the other hand, it may be well said that those illustrations which are present are, as a rule, well selected.

We do not know of any book on nervous diseases which so clearly, concisely, and ably presents the entire subject so well as does that of Dr. Dana, and while it is true that in some instances he is dogmatic as to diagnosis and treatment, this perhaps is an advantage rather than a fault in view of the concentration of the text.

A Text-book of Human Physiology. By Albert P. Brubaker, A.M., M.D.
Philadelphia: P. Blakiston's Son & Co., 1904.

Dr. Brubaker is known to a large number of medical and dental graduates as an able teacher of human physiology, and students outside of the city of Philadel-

phia as well as in it are familiar with his name because of the successful Quiz-Compend upon this subject which he prepared twenty odd years ago, and which has since that time gone through many editions. The present volume is a very much more noteworthy one than the Quiz-Compend to which we have referred. It is supplied with colored plates and 354 illustrations, and endeavors to present the subject of physiology as exhaustively as it can be presented in a single volume of about seven hundred pages. Many of the illustrations which he employs are taken from other sources than his own physiological researches, and in several instances credit for the same is not given, an oversight which we presume will be corrected in other editions.

We naturally turn with interest to the chapter on the blood, since this fluid has been subjected to such careful and fruitful experimental investigation by Ehrlich and others within the last few years. We regret to find that the author has not described Dare's hemoglobinometer in preference to the instrument of Gowers, and that he has said nothing about the properties of blood serum in its ability to destroy bacteria and to combat toxins. While it may be held that these things deal rather with pathological than with physiological conditions, it seems to us that at this time these very important functions of the blood serum should not be ignored in a work on modern physiology. Criticisms of this kind, however, do not in any way indicate radical defects, but simply differences of opinions as to the relative importance of certain subjects.

To sum up our opinion of the book we may state that it affords the student and practitioner a first-rate guide in elementary physiology, and not only describes normal functions with accuracy, but also the apparatus which can be employed for ordinary physiological experimentation.

THE PRACTICE OF OBSTETRICS. By J. Clifton Edgar, M.D.
Philadelphia: P. Blakiston's Son & Co., 1904.

It is not a year since we had the pleasure of noticing the first edition of this very extraordinary work upon obstetrics by one of the most active practitioners and teachers of this department of medicine. At that time we referred to the work in the most complimentary phrases, and it is needless to say that the second edition of the book is, if possible, better than the first. It is one of the largest works, if not the largest, upon obstetrics yet prepared by a single author, and it contains no less than 1264 illustrations, with five colored plates and 38 figures printed in colors. Unlike many of these figures in other volumes, the colored plates are exceedingly well executed, and really show what they are designed to illustrate. We cannot conceive of a book which could be more useful to the general practitioner of obstetrics than this one. While individual practitioners may differ from the author in regard to certain of the methods which he advises, they will nevertheless admit that these points of difference are still under discussion. We happen to note on page 323 a typographical error in speaking of Dr. Wilmer Krusen as "William" Krusen.

We prophesy that the second edition of Dr. Edgar's work will be as rapidly exhausted and prove as popular as the first.

RADIOTHERAPY AND PHOTOTHERAPY. Their Medical and Surgical Applications in Diagnosis and Treatment. By Charles Warrenne Allen, M.D. With the coöperation of Milton Franklin, M.D., and Samuel Stern, M.D.
Philadelphia: Lea Brothers & Co., 1904.

The profession will welcome the appearance of this book if for no other reason than that it provides them with a succinct and accurate account of these new methods of diagnosis and treatment. While there are many other practitioners in this country who have employed these agents largely and have written about them, it is nevertheless advantageous to have placed before us not only the conclusions arrived at by other authors, but those obtained by Dr. Allen as well.

The first part of the book is devoted to general considerations of radiology, its history and character, the apparatus required, and the methods of administration. The second part deals with its employment in diagnosis; the third, with radiotherapy; the fourth, with light as a therapeutic agent; the fifth part, with actinotherapy; the sixth part with radioactivity; and the seventh with high-frequency currents. The book is copiously illustrated, not only with pictures of ap-

paratus but with diagrams illustrating its use, and, in its clinical portions, with pictures showing patients before and after treatment. It cannot be doubted that this method of treatment has come to stay in a certain number of cases. Exactly how valuable it will prove or how large a number of cases will be benefited by it in future is still undetermined. Dr. Allen's book helps the profession in general to the determination of this important question.

THE STUDENT'S HANDBOOK OF SURGICAL OPERATIONS. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., F.R.C.S. New Edition.
Chicago: W. T. Keener & Co., 1904.

Even to those professional carvers of their fellow man who have habitually used Treves's admirable operative surgery, this condensation, designed mainly for the use of students, comes as a welcome and useful addition to the craftsman's library. There has long been need of a work of this kind designed for those who have the ordeal of examinations before them. There was little hope, however, that this need would be admirably filled by a master hand. The anatomy is dwelt upon briefly. Theoretical considerations are omitted entirely. The practical accomplishment of each operation is described with absolute lucidity. The book is quite certain to become extremely popular.

HANDBOOK OF SURGERY. By Frederic Richardson Griffith, M.D. 417 Illustrations.
Philadelphia, New York, London: W. B. Saunders & Co., 1904.

Griffith's work upon this subject is a monument of skill in condensation. In view of the many-volumed systems of surgery, it is astonishing to find embraced in about 550 pages surgical equipment, bandaging and minor surgery, preparation, anesthesia, operation, microscopic technique, bacteriology, wounds, special surgical diseases, pathology, medicolegal examinations, tumors, surgery of the bones, orthopedic surgery, surgery of the joints, operative surgery, surgery of the fascia, tendons, and muscles; of the circulatory system, the respiratory system, the nervous system, digestive organs, skin and lymphatic system, the genito-urinary system, the eye, and the ear.

The part devoted to the respiratory organs includes those affections often relegated to the specialist. The part pertaining to the digestive organs begins with harelip, and includes affections of the tonsils, finishing with the thyroid and thymus glands.

Each affection is taken up in a distinctly practical way, beginning with a definition, followed by etiology, symptoms, diagnosis, treatment, and prognosis.

As a matter of fact, considering the enormous ground covered by this work, it is extremely well done. The carping critic might find faults of omission were he rigorously to hunt for them, but an effort to duplicate the work would leave him astonished at how little of major importance has been left out.

REGIONAL MINOR SURGERY. By George Gray Van Schaick, M.D.
New York: International Journal of Surgery Co., 1904.

The promptness with which a discriminating profession has called for a second edition of this work is proof that the book is well worth while. The first edition was so recent and so satisfactory that revision would seem to have been unnecessary, yet the author has made every effort to avail himself of all serviceable suggestions occurring in current literature. The classification is regional, and the various procedures are clearly described. Also, with few exceptions, the choice of procedure is wise, and there is everywhere evidence that the teaching is based upon the wise experience of a common-sense surgeon.

MANUAL OF PERSONAL HYGIENE. By American Authors. Edited by Walter L. Pyle, A.M., M.D. Second Edition, Revised and Enlarged.
Philadelphia, New York, and London: W. B. Saunders & Co., 1904.

In the introduction to this work, the result of collaboration on the part of D. H. Bergey, M.D., J. W. Courtney, M.D., George Howard Fox, M.D., E. Fletcher Ingals, M.D., B. Alexander Randall, M.D., G. N. Stewart, M.D. (Edin.), Charles G. Stockton, M.D., it is stated that a striking example of the sacrifice of health from avoidable and preventable suffering is the great number of physical and moral wrecks, the victims of the very prevalent habit of worry. As a necessary sequence follows the advice that the surest way to restore health that is threatened is to keep the mind cheerful and hopeful.

Stockton, in writing of the hygiene of the digestive apparatus, seems to think that upon digestion depends the general physical condition. Excellent advice is given as to the relation between the quantity of the food taken and the amount of work performed. Proper cooking is insisted upon, and it is stated that a certain amount of water should always form a part of every meal, this being particularly necessary in those who have very active digestion. It is pointed out that women as a rule drink too little water. Alcohol is considered unnecessary, and caution is given against eating after vigorous exercise.

Fox, after a brief description of the function and physiology of the skin, devotes considerable time and attention to the question of bathing. He notes that a good soap cannot be made very cheaply, and that medicated soaps are of little use. He observes that any toilet soap upon the market may be used with impunity by the majority of people. He calls attention to what is called bath pruritus, and gives certain directions in regard to care of the complexion. The clothing is sensibly discussed, including shoes, socks, and corsets. Directions are given for the care of the hair. There is a very useful discussion concerning the use of hair restorers.

Ingals contributes an interesting chapter on the hygiene of the vocal and respiratory apparatus. He inveighs against the dry air of houses in winter, and he would prevent children from picking the nose by rubbing a few drops of vaselin into the nostrils. The care and training of the voice in children is very sensibly discussed, as are also prevention of spinal deformities, shoulder-braces, the purity of the air inhaled, and the general principles of climate.

The hygiene of the ear is treated by Randall, who states that wax does not collect in a healthy ear, and cautions against the use of scoops or mops. He also solemnly warns against the custom of a preliminary softening of a plug of wax by putting oil or other fluids into the ear. Careful syringing with hot water is the only proper procedure for removing wax.

The eye is considered in a most instructive manner by Pyle. After a brief discussion of the importance of the eye, he takes up such subjects as eye-strain, visual tests, general care of the eyes, and school hygiene, spectacles and eye-glasses.

The hygiene of the brain and nervous systems is considered by Courtney. He discusses puberty and its attendant dangers, abuse of alcohol, overwork, and need of mental recreation, sleep, and insomnia.

Stewart contributes a chapter on physical exercise, extremely sensible and directly to the point.

Bergey takes up domestic hygiene, beginning with the consideration of furnishing of dwellings, ventilation, heating, light and water-supply, plumbing and drainage, the disposal of garbage, ashes, and nuisances; house cleaning, food and dietetics, and causes and transmission of disease.

A very useful appendix considers pulse, temperature, and respiration, baths, massage, accidents and emergencies, poisoning and antidotes.

The book is contributed by men thoroughly versed in the subjects they discuss, and is so full of useful information put in a reliable and practical way that it can be cordially commended for general consumption.

Correspondence.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

At a recent meeting of the Academy of Medicine Dr. Lucas-Championnière, a well known surgeon of the Paris hospitals, made some interesting remarks on the causes of appendicitis and its prevention. This disease used to be infrequent, but it is seen much more frequently since we have had epidemics of influenza, and in certain countries like Australia it has only been observed with any degree of frequency since this period. Another important factor is the regimen, the vegetarian diet being a preventive, as is seen in Porto Rico, where the natives, who live on vegetables, show very few cases, while the Americans are subject to it. In Roumania there is one case in 22,000 vegetarians, and one case in 221 carnivorous inhabitants. The same holds true in Belgium.

Algeria, Tonquin, and New Caledonia. In the French prisons, where the food consists mostly of vegetables, there is very little appendicitis—one case at Clairvaux since 1900; at La Roquette two or three very slight cases, easily cured by a few days' treatment. Amongst nuns, who live on a few vegetables, there is also no appendicitis.

At this same meeting Professor Reclus, the best known advocate of anesthesia by cocaine, read a communication on the use of stovaine, a new local anesthetic discovered by a French chemist, Fourneau. It seems that this new drug acts just as well as cocaine, it having been used in Reclus's wards, and the latter preferring it to cocaine. Stovaine is only half as dangerous as cocaine, when tried on animals, and so far Dr. Reclus has found that its use is rarely followed by the symptoms seen after the use of cocaine, such as pallor and distress. Speaking of the operations in which it can be used, Dr. Reclus mentions such cases as those offered by lipomas, fibromas, small cancers of the skin, removal of the fingers, ingrowing toe-nails, felons, abscesses, gastrostomy; umbilical, inguinal, or crural herniæ; and dilatation, hydrocele, laparotomies for non-adherent cysts of the ovary, or tuberculous peritonitis; empyema with or without excision of a portion of rib. In his service two-thirds of the operations are done by means of stovaine. Stovaine causes vasodilatation, so that there is slight hemorrhage. But this will perhaps allow of patients being operated on while they are seated. So far Dr. Reclus does not dare to affirm this.

The well known dermatologist, Dr. Sabourand, of the St. Louis Hospital, reported at a meeting of the Society of Dermatology the results he had obtained in the treatment of tinea capitis. He had obtained 134 cures at the hospital, and treated 251 children who did not live at the hospital. The number of beds had been reduced. The treatment consists in the use of *x*-rays. Out of 2200 applications, there have only been six cases of radiodermatitis and eleven simple cases of erythrodermia. A new screen in platinocyanide of barium is used, which indicates how long the treatment should be continued, and which is usually eight minutes. This period of time is indicated by the color of the screen.

Dr. Alfred Martinet has recently written an article in the *Presse Médicale* on the choice of an acid in the treatment of gastric troubles. Professor Robin recommends the following mixture:

> Pure sulphuric acid, 2 grammes 40 centigrammes;
> Nitric acid, 80 centigrammes;
> Alcohol at 80°, 18 grammes.

This preparation should be left by itself for forty-eight hours, and then the following should be added to it:

> Syrup of lemons, 100 grammes;
> Aqua fontis, 150 grammes. .
>
> F. s. a. One to three soupspoonfuls every day after meals in some water or wine and water.

Dr. Martinet, however, considers that phosphoric acid is even better than this or hydrochloric acid, as it does not have any effect on the secretions of the stomach. It is neutralized in the intestine and produces phosphate of soda. Hydrochloric acid on the contrary inhibits the secretion of gastric juice when it is found in too large quantities in the stomach, as shown by Pawloff. This phosphate of soda is a normal body in the urine, and being acid helps to render the urine aseptic, and is of benefit in catarrh of the bladder. Lastly, it has a tonic effect on the nervous system, and in dyspepsia complicated so frequently with nervous debility it has an excellent effect. The following formula is recommended by Dr. Martinet:

> Phosphoric acid (official), 10 grammes;
> Acid phosphate of sodium, 20 grammes;
> Distilled water, 200 grammes.
>
> One to four teaspoonfuls (according to indications and tolerance) in a glass of water or wine and water during the meal.

This treatment can be continued quite a length of time, according to the experiments of Cantur and Joubè.

Dr. Widal is continuing his interesting work on the chlorides, and at a meeting of the Society of Biology he remarked that he had found that the cure of dechlorination, as it is called, had an influence on the quantity of albumin excreted in various forms of albuminuria. Meat can be given without increasing the quantity of albumin, provided salt is carefully given.

At a meeting of the Academy of

Sciences a communication was read by Dr. Bordas, who had been investigating the quantity of arsenic contained in certain pharmaceutical products, which have been torrefied with coal containing a certain amount of arsenic. Glycerin was found to contain as much as nine-tenths of a milligramme per kilogramme. Certain pharmaceutical products, such as the glycerophosphates, would contain as much as two-tenths of a milligramme. It should, moreover, be remembered that these bodies are administered to children.

Dr. Lucas-Championnière made some remarks recently at the Academy of Medicine which are certainly quite startling by their being so radically opposed to what is generally taught as to the treatment of phlebitis and varicose veins. Already in 1878 Dr. Championnière, who was then surgeon of the Cochin Maternity, did not have women suffering from phlebitis kept immovable. He favored Dr. Dugron's treatment of phlebitis, which consists in gentle and progressive massage. He also recommended Dr. Marchais's treatment for varicose veins, the chief element of which is rapid walking. Elastic stockings are forbidden. The patient can also carry out exercises while lying down. Drs. Raymond and Zimmern have also studied the influence of radium on the pains seen in locomotor ataxia, and the results seem to have been excellent after a few applications of this remedy.

At a recent meeting of the Society of Surgery a long discussion took place on the beneficial influence of laparotomy in certain affections of the liver where no radical intervention could be carried out. Dr. Faure described a case reported by Dr. Denis, of Constantinople, where the patient, a sailor, was thought to be suffering from suppurative hepatitis. On performing laparotomy the liver was found very large, and was punctured repeatedly without any pus being found. This operation proved most beneficial, however. Dr. Lejars related a case in which, on account of the serious symptoms shown by a woman—loss of flesh, jaundice, very large liver, appearance of a tumor near the biliary vesicle—he operated and found a neoplasm of a greenish-yellow color in the substance of the liver. Failing to remove it, he decided to leave it, and the patient made an uneventful recovery. Ten years ago this woman, who had never admitted any symptoms of syphilitic nature, presented a tumor on the left tibia which disappeared after a syphilitic treatment. It may be that the tumor was of syphilitic origin. Dr. Reymer, Dr. Tuffier, and Dr. Hartmann described similar cases in which an operation was performed for infection or presumed cysts, and though nothing more than a laparotomy was performed the patient recovered completely. This would seem to be similar to the results of Edebohls's operation in chronic nephritis.

THE USE OF RADIUM.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I am sending you two pictures which I believe will be of interest to you and the readers of the GAZETTE. I believe they are the first of the kind taken in this country.

The radium used is a half of a grain of one million activity.

The time of exposure of the water used to the radium was twenty-four hours.

The time of exposure of the plate and

scissors to the water, "which was in a bottle suspended about 4 inches above plate," was sixty-four hours.

The time of exposure of plate and scissors to the radium was sixteen hours, just one-quarter of the time necessary for the water; thus showing that the water

thus prepared is one-fourth as active as the radium.

The clearest plate is the result of the radium, the other the radioactive water.

Yours fraternally,

G. A. SMALE, M.D.

St. Charles, Michigan.

APOCYNUM CANNABINUM VS. ANDROSÆMIFOLIUM.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In the August number of the GAZETTE appears an editorial estimate of the value of *Apocynum Cannabinum*, which is most discriminating and satisfactory, and assigns to that not too well known drug a very important place in the physician's armamentarium. It throws light on a rather obscure subject, viz., the scope and field of this potent article.

But it is not so much because of what was said of this drug as because of what was said comparatively of a relative in the same order, viz., *Apocynum Androsæmifolium*, with which it has been confounded, with consequent disappointment, that I write. That there should be difficulty in making a distinction between the two plants is not very strange, as there is quite a strong resemblance between them, and besides, they are found growing side by side in the same places, and are of about the same height and general appearance. It would seem, however, that any one assuming the function of collector of valuable medicinal plants ought to be botanist enough to distinguish between them. The substitution of the androsæmifolium for the cannabinum would naturally produce disappointment, as the therapeutic virtues of the two drugs are quite diverse from each other, although the former is possessed of equally valuable virtues.

As the therapeutic energies of the cannabinum are expended largely upon the heart and kidneys, the other variety expends its influence largely upon the hepatic apparatus, including the liver itself, as well as the gall-bladder and ducts, etc.; also extending its influence to the mucous coat of the bowels and stomach. In malarial conditions with torpid liver, in jaundice, in all cases where there is a sallow, yellowish skin, with foul tongue and clay-colored feces, it has a peculiarly happy effect. In fact, in all so-called bilious conditions it is almost a specific. It unlocks the secretions of the liver, secures a free discharge of bile, and becomes, if pushed, an efficient cathartic, although it is primarily an ideal cholagogue.

It is a most efficient aid to the administration of quinine in all malarial conditions, and in remittent and intermittent fevers.

Much more might be said of the valuable uses to which this article might be put, but I simply wish to enter a plea for the drug, which deserves more recognition, in its own behalf, and not merely as one which gets in the way and is confounded with its congener, to which it is or might be a valuable ally. I recommend it to the profession as a most valuable aid to the restoration of the delayed or faulty operations of the liver and general hepatic apparatus.

GEO. S. CHALMERS, M.D.

Galesburg, Illinois.

—THE—

Therapeutic Gazette

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Original Communications.

HOOKWORM DISEASE (UNCINARIASIS).

BY THOMAS W. DORSETT, M.D.,
Chief Surgeon to O. P. & V. R. R., Willacoochee, Ga.

The intestinal parasite, *Uncinaria Americana,* is receiving a great deal of attention at present, and owing to the frightful ravages that it is making among us it is not receiving the attention it should.

When we consider the useful lives that are blighted, the blossoming intellect that is "nipped in the bud," and the dwarfish dirt-eaters that it causes, it should induce us to push forward with untiring efforts and conquer the little pests that jeopardize so many lives.

It is an evident fact that a vast majority of its victims are our innocent, barefooted boys and girls who live, in a majority of instances, in the rural districts, and who suffer a great deal from "ground itch," and are often called dirt-eaters.

It is not an absolute certainty that ground itch is caused by this parasite, but it is a clinical fact that the two are very closely related. In all probability the larvæ enter the body through the skin at some exposed part, notably the hands and feet, causing this inflammatory condition known as ground itch. In a number of cases I have never failed to find that there had been a previous ground itch. I hope that the day is not far distant when the clouds will have all disappeared and we can know the exact relation between the two. But until this is true let us ever

look with suspicion on ground itch, preventing it when possible and curing it when present.

How often have we who live in a malarial district held the malarial parasite responsible for our numberless anemias, when in a vast majority of cases they were caused from nothing less than this *Uncinaria Americana!* Those of us who live in the southern portion of our country should ever remember that this is by far more often the cause of anemia than the malarial parasite.

The diagnosis of this malady is exceedingly easy with the aid of a microscope. The eggs of the parasite are easily seen and recognized in the feces. They can be recognized readily with a low power. Simply obtain a small particle of the suspected feces, put it on a clean slide, and thoroughly mix a drop of clean water with it; put on a cover-glass and examine. It only requires one or two minutes of your time, and your diagnosis is complete. Those who have no microscope will of course have to rely on the general symptoms, which are very numerous.

The patient usually begins to feel badly, with a disinclination for labor, at the beginning of spring, and by summer may be in a very critical condition. It is very characteristic that patients feel much better, and sometimes assert that they are well, during the winter months.

It is a clinical fact that the victim's growth is exceedingly slow. Often a patient eighteen or twenty years of age appears to be not over ten or twelve. The beard grows but little. It is also a notable fact that the mind does not develop nearly so rapidly as it should. The hair is usually very light in color, and the complexion is very sallow. In some cases we may have edema and even anasarca, and we often find a slight elevation of temperature.

The treatment is very simple and highly effective. I have used but one vermifuge in the disease, namely thymol, in sixty-grain doses, and my efforts so far have been crowned with success. Here I wish to say that I cannot agree with some in regard to one treatment being sufficient to rid the patient of the parasite entirely. In a majority of my cases one treatment has been sufficient, while in some it required two doses, and in one case three did not suffice.

If one treatment is not sufficient to expel the worms, repeat the treatment at intervals until you have succeeded in expelling every one. I have never seen any ill effects from giving these large doses of thymol. The inexperienced may hesitate, fearing toxic effects. It is highly important that you see *that the patient takes no alcohol* in any form while taking the thymol, for it might dissolve the agent, cause absorption, and result in poisoning.

It is also very necessary for a successful expulsion of the worms to rid the bowels of all fecal matter before the thymol is given. I accomplish this by not allowing the patient to eat any dinner or supper the day before the thymol is to be taken, give ten grains of calomel about noon and a large dose of salts or oil at bedtime, which should cause at least four or five evacuations. On awakening in the morning the thymol, which should be finely powdered, is given in two or three doses; it is my custom to give twenty grains, in capsules, every hour for three hours.

The patient should be confined to the bed while the thymol is in the bowel, and *absolutely no breakfast or dinner allowed.* At six o'clock in the evening a large dose of salts or oil is given, which will bring the worms. The patient can eat his usual supper.

If the canal is not thoroughly emptied of fecal matter and food prohibited for the four meals above mentioned the worms will not all be expelled, and you will not be successful. The treatment should be repeated in a few days if the eggs are still found in the feces.

INSOMNIA AND SLEEP-INDUCTION.

By Henry B. Hollen, Ph.G., M.D.,
Detroit, Mich.

It is not the intention of the writer to include here a tabulation of the various theories which from time to time have been advanced to explain the phenomena of sleep, nor will any attempt be made to maintain the integrity and plausibility of any one of these. Much ingenious speculation has been associated with the question, and undoubtedly a great deal more is forthcoming from future physiologists. Notwithstanding, the nature of sleep re-

mains one of the uncertainties of medicine. The different theories of alternation, accumulation, toxicity, and those of Pfluger and Howell have, in turn, been carefully considered, but have been found wanting in one or more respects. These, however, have served to present material for several acceptable deductions, viz.: (1) sleep is a gradual process resulting in a condition of more or less well defined unconsciousness following exhaustion or fatigue; (2) it is dependent upon the withdrawal of sensory influences; and (3) it is associated with certain vascular changes, the most prominent of which is anemia of the brain.

The advances made in neurological medicine and the development of the neurone and dendrite theory, in relation to the nervous mechanism, has called attention to the physiological doctrine which is based on structural changes in the cerebral processes. Bearing in mind the neurone-to-neurone connection as the pathway by which travel sensory impulses, Duval contends that the physiological condition of sleep is dependent upon an interruption of contact of the cell processes or a severance of continuity of the nervous pathway. On the other hand, Lugario believes that it is due to a generation and union of cell processes, resulting in a multiplicity and diversification of the channels of intercommunication.

Waiving a discussion *pro* and *con,* the condition of perverted function upon which sleeplessness or insomnia is based is one commonly met with in general practice, and one which many times taxes the resources of the physician. Nowadays its treatment has been somewhat simplified, inasmuch as insomnia has become recognized as a symptom and not as a separate and distinct disease process. As a symptom it is difficultly coped with, for the reason that it is presented in so many different phases and associated with a long list of disorders. The various causative influences are not always rightly interpreted and handled; hence the non-success that results in many cases.

The underlying conditions are probably best encompassed by the following classification, suggested by a well known investigator: *Irritative causes:* worms, teething, indigestion, eye-strain, enlarged tonsils, adenoids, cold feet, asthma, vesical irritation, pruritus, and various paresthesiæ. *Toxic causes:* Bright's disease, uremia, acute infections, alcoholism, nicotinism, gout, excessive use of coffee, tea, and cocoa; opium, morphine, and cocaine habituation, and certain gastrointestinal infections. *Psychic causes:* sexual erethism and the mental states of grief, shock, and worry, as well as the more complex abnormalities expressed by the terms habit and hereditary insomnia. *Degenerative causes:* senility, diabetes, tuberculosis, syphilis, etc.

The above will readily convey to the mind the large number of therapeutic measures which have their places in the treatment of insomnia; they are, of course, too numerous for consideration here. Sedatives and hypnotics are legitimately a part of the therapeusis of sleeplessness, but first of all the underlying defect—whether structural or functional, local or systemic —demands correction. Positive recognition of the causative influence in a given case is highly important on account of the bearing which it has on the line of treatment to be followed out. It is a mistake to employ sedatives or hypnotics indiscriminately. For example, it would not be advisable to administer opium for the insomnia consecutive to hysterical neurasthenic pain, or to give sulphonal in that form of it which accompanies heart disease (in which case opium and digitalis would be appropriate remedial agents).

Some drugs which were formerly used to induce sleep, among them sumbul, valerian, lupulin, passiflora, cannabis, lactucarium, and hyoscyamus, have been largely superseded by synthetic compounds. Of the large number of hypnotics at the disposal of the present-day physician may be mentioned chloretone, morphine, codeine, chloral, chloralamide, chloralose, trional, sulphonal, paraldehyde, tetronal, ural, hypnal, veronal, and chloral-amylene. Clinical experience, involving the employment of these and other drugs, has demonstrated beyond a doubt that the first-named, chloretone, is the safest and most satisfactory hypnotic available. Wilcox in referring to it writes as follows: "Permit me to sum up tersely the requirements in a hypnotic which shall approximate the theoretical agent. It must combine one of the alcohol radicles (for the action in breaking con-

tact of the dendritic processes) with chlorine to affect simultaneously the downward protoplasmic processes; it must be free from depressing action on the heart and blood-vessels; it must not derange the assimilative system; it must be reliable and it must be palatable. The only hypnotic which has attracted marked attention is chloretone, which meets so completely each one of these requirements as to approximate the theoretical hypnotic of which we have been in search."

Chloretone (trichlor-tertiary-butyl alcohol) is derived from chloroform and acetone, and is a white crystalline substance with a camphoraceous odor and taste. A saturated aqueous solution contains one per cent of the drug; it is more or less freely soluble in alcohol, ether, benzin, acetone, chloroform, and acetic acid. Its physiological action is remarkable for the reason that it is not only a hypnotic but it has also a strong antiseptic and anesthetic action. When the drug is ingested it passes unmodified from the digestive tract into the blood, where it is decomposed, the chlorine and methyl radicle acting immediately on the nerve filaments and protoplasmic processes. The hypnosis of chloretone is not marked by depression of the nervous system. The temperature, respiration, and pulse-beat are not modified. Moreover, its action is free from the deleterious and irritative effect on the gastric mucosa or the intrinsic centers governing the digestive function. On the other hand, it acts as a local anesthetic to the stomach and as a sedative to the excited "vomiting center" as well as other nervous nuclear areas.

Other hypnotics are more or less efficient for producing sleep, but closely following the primary action of the greater number is one of intoxication, exhibited by cardiac depression, exhaustion, irritability, and malaise. Another class of untoward symptoms are those traceable to disturbance to the digestive organs, viz., nausea, vomiting, headache, gastric pain, and loss of appetite. These symptoms are so pronounced in many patients that the administration of trional, sulphonal, etc., becomes highly unwarranted, as by their use these cases are ultimately aggravated many fold. In insomnia grafted on a disordered digestive tract, as the irritable stomach present in various intoxications, the bulk of hypnotics are intolerable. Many of these drugs are dangerous in that their continued administration is attended by a demand for increasing dosage to attain the sleep-compelling effect, leading not uncommonly to a condition of more or less well defined habituation.

Wade recently reported (in the *Journal of Nervous and Mental Diseases,* August, 1900) a number of cases under his care at the Maryland Hospital for the Insane, in which chloretone had been employed with uniformly good results, these cases including a variety of mental disorders. In all it was noted that the administration of chloretone was followed by drowsiness and quietude, and finally by sleep free from bad dreams and bad after-effects, in the most maniacal patients. The writer recommends large doses of the drug, starting with not less than fifteen grains, the succeeding doses being gradually increased. He states that as much as fifty grains have been given without any unfavorable results. To illustrate the safety with which chloretone may be given Wilcox notes that one of his patients took in all 108 grains of the substance, which caused a profound sleep for three days, but did not bring about any alarming symptoms. A case is also recorded in which a morphomaniac took 120 grains in divided doses within twenty-four hours with no bad effects following.

In general, chloretone is best administered in doses ranging from six to eighteen grains. Probably the most satisfactory results are obtained by giving it in two doses of ten grains each, about two hours apart. During the period between the two doses (just before the second, preferably) the patient should take a hot bath lasting from twenty to thirty minutes, after which the cold spray should be applied for three or four minutes.

The value of hydrotherapy, as adjuvant treatment, has been to a great extent underestimated. As a matter of fact, however, it is highly beneficial in the insomnia of Bright's disease, gastric disorders, acute infections, alcoholism, and neurasthenia. A hot foot-bath a half-hour before bed-time is productive of much good. In achylia gastrica and other derangements of the digestive tract the character of the diet becomes a matter of importance. In

these cases regularity in feeding is to be observed. The dietary demands highly concentrated but easily digested foods—peptonized broths, egg albumen, meat juice, etc. Beef jelly (Mosquera) is a favorite preparation, the proteids of which are predigested. It may be necessary to resort to rectal alimentation in the most aggravated cases. Gastric lavage, performed at frequent intervals, is of material service.

The bromides have long retained a place in the treatment of certain forms of this disorder. Contrary to popular opinion they do not induce hypnosis directly, but they are rather indirect hypnotics, producing a neuromuscular depression. "The bromides lessen cerebral activity, readiness to react to emotional stimuli, and sensibility and irritation of mind generally, thus inducing a condition of brain favorable to the advent of sleep." They are applicable in those forms of insomnia which are of a so-called psychic nature, and give good results in the restlessness and sleeplessness resulting from worry, whether the latter be of an intellectual or emotional type. Aldrich recommends bromide of strontium in doses of twenty or thirty grains in an infusion of hops.

In the event of pain as the underlying factor somnolence and sleep is, in general terms, consecutive to its abolition, and general or local anodynes are indicated. Acetanilid is an efficacious remedy employed as an analgesic in neuralgia, migraine, and allied affections. Morphine (or opium), as previously intimated, is not applicable in the pains of hysteria and neurasthenia, nor in acute mania. In those instances in which morphine is not well borne chloretone will be found to be a good substitute, as by its use gastric disturbance will be eliminated. When pruritus is present, chloretone, applied topically in the form of a solution containing two grains to the ounce of water, will materially allay the sensation of itching by reason of its local anesthetic effect. It has been found by many to be effectual when other sedative agents failed.

Hyoscyamus, or more properly hyoscine hydrobromate, is a drug of undoubted value in a certain class of insomnias—that in which delirium is the uppermost feature, whether arising from acute infections, alcoholic excess, drug addiction, or sexual erethism. Administered orally or hypodermically, hyoscine in doses ranging from 1/200 to 1/100 grain will correct the excitement of hypercerebration. It is to be avoided, however, when depression and exhaustion are present, and at all times is to be cautiously administered. Methylene blue has recently been recommended by Zaitzev and Toporkov for the sleeplessness present in severe psychoses accompanied by persistent excitation, but I have had no experience with it. Chloral in twenty-grain doses is serviceable and acts well in the relatively healthy individual. Its reactionary effects may be ushered in abruptly in those appreciably weakened from any cause, the heart and motor centers being directly depressed by it. "Besides its depressing effect on the medulla, chloral hydrate in full doses acts as an intrinsic cardiac poison, slowing and enfeebling the heart by diminishing the irritability of its ganglia, and finally arresting it in ventricular diastole." In many cases the untoward symptoms based on idiosyncrasy have been noted, in which instead of sedation a condition of aggravated excitation is produced. Therefore its effects are to be closely watched and medication instituted with relatively small doses, especially when dealing with children and individuals of delicate constitution. Heart, lung, and renal disorder, and certain systemic states, as rheumatism and gout, contraindicate this drug. A very unfortunate feature of chloral hydrate is the insidiously growing demand for increasing doses, leading ultimately to habituation. Chloralamide, derived from chloral anhydride and formamide, is fairly safe but extremely uncertain in its action, its effects being widely variable even in the same individual. Like chloral, it is hypnotic without anodyne properties.

Much might be written about the toxic insomnias. These constitute a large class and require the most persistent treatment. In *mania a potu,* or acute alcoholism, it is to be remembered that the patient is suffering from depression caused by a cardiac and nervous poison, the toxicity of which must be combated by eliminative measures and by procedures which will tend to reënforce the lowered vitality. This latter is accomplished by frequent beef-broth or milk-and-Seltzer feedings, with

occasional doses of a stomachic stimulant such as the following:

Tinct. nucis vomicæ, f3iv;
Tinct. capsici, f3iv;
Tinct. cinchona comp., f3ij.

As regards a hypnotic, chloretone is the best that can be given, since its local anesthetic and sedative action renders it easily tolerated in the condition of gastric torpor and catarrh present in these cases. It will quiet the delirium and restlessness and will correct the accompanying auditory and visual hallucinations. Strychnine, strophanthus, caffeine, or digitalis will prove suitable adjunct medication.

THE RATIONAL TREATMENT OF ERYSIPELAS, WITH CASE REPORTS.

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From time immemorial up to within the last year or so, the successful treatment of erysipelas has been an unknown quantity to the majority of the members of the medical profession. The modes and methods heretofore employed have been examples of rank empiricism—not the result of ignorance so much as the want of an agent having a specific action against the streptococcus erysipelatus. But recently, thanks to the antistreptococcus serum, we have at last become possessed of a means whereby a case of erysipelas attracts no more than passing notice at the hands of the busy practitioner who is fortunate enough to use the method advocated in this article. It may be well to say that this article is intended for those who have not felt disposed to give the antistreptococcus serum the attention it so richly deserves. I feel absolutely certain of the fact that if those who have not used these methods in combating the above most troublesome disease will give it a fair and impartial trial, their success will be as gratifying as mine has been.

When the diagnosis of erysipelas is based upon visible and indisputable facts, and early enough in the disease, and the methods herein described are used, ninety-nine out of every hundred of the cases will quickly and completely recover.

The technique of using the antistreptococcic serum involves only questions of ordinary asepsis. As the site of injection I always prefer the anterior portion of the thigh, about midway between the knee- and hip-joint, in the body of the quadriceps extensor muscle. I always scrub a place about as large as my hand with green soap and hot water for five minutes. Then I shave the part and wash again with hot sterile water, then wipe perfectly dry, and cover with a piece of sterile gauze wet with alcohol while preparing the bulb containing the serum. I always use the bulb and needle as prepared by the manufacturers, and never give it any more attention than to adjust the needle without unwrapping it. After injecting the serum I cover the puncture with plain gauze held with adhesive plaster. If the point of injection is prepared as described, and if the needle is let alone as described, an abscess will be unknown; at least I have never had one in my practice, with either the antistreptococcus or antidiphtheritic serum.

The amount of the serum to be used will of course be determined in each case. In most cases I begin by giving 10 cubic centimeters and repeat as necessary. But in some cases I have given 20 cubic centimeters, and have given it to old and young alike, and have never had any untoward results, excepting a slight rash in one or two cases. At one time I had two very severe cases of erysipelas on hand: one was a girl thirteen years old, the other a cow-puncher twenty-eight years of age. I gave both 20 cubic centimeters the first dose. The result I had in both cases was a decided improvement in the conditions. This is merely to demonstrate that it will do no harm to give it in large doses, and to convey the impression that large doses are beneficial. If the case demands large injections they must be given, or the result will be a disappointment. The physician will blame the serum, when it is he that is at fault.

In my course of observation I have seen that the great drawback in the successful use of the serum is either cowardice or conservatism, and I think the former was the ruling spirit. But one thing is certain: if enough is not given to produce the desired effect, the result will be quite disappointing.

Case I.—Mrs. P., aged forty-five,

housewife. I was first called March 13, at 4 P.M., and I found the patient violently delirious; rectal temperature 105½°, pulse 130. Nose, face, lips, ears, and entire scalp enormously swollen and inflamed. The eyes were completely closed. Scattered over entire area were numerous blebs of varying size. Diagnosis, erysipelas. Treatment: Gave calomel and soda for bowels, sponged entire body with cold water, bathed infected area with carbolic solution. I then applied 25-per-cent ichthyol ointment and injected into thigh 10 cubic centimeters of antistreptococcus serum (P., D. & Co.). Next morning I found the patient perfectly rational; temperature 101°, pulse 98. I gave another sponge bath. I again bathed infected area with carbolic solution and applied ichthyol ointment. I also gave 10 cubic centimeters more of the serum. From this time on no further treatment was used but mild catharsis and nourishing diet. As nearly perfect asepsis as possible of infected area was maintained. Recovery was complete in twelve days.

CASE II.—J. M., ranchman, aged thirty-three. I was called April 2, at 3 A.M. The patient was delirious; temperature 104½°, pulse 120. Incontinence of urine was present. Bowels had not acted for four days. He had several rigors during the twenty-four hours preceding the time I first saw him. The entire surface from high on the neck down to the buttocks was badly swollen and edematous. The line of demarcation was typical and distinct, as in case one. The blebs were numerous and of varying sizes. Diagnosis, erysipelas. Treatment: I gave twenty grains of calomel and soda, catheterized bladder, and gave cold sponge bath. I washed infected area with carbolic solution and applied a 10-per-cent ichthyol ointment, and then injected 10 cubic centimeters antistreptococcic serum (P., D. & Co.), and applied ice-bag to head. Next morning I found the patient rational; temperature 102°, pulse 110. I gave another sponge bath, renewed ichthyol dressing, and gave 10 cubic centimeters more of the serum. He required no further treatment other than perfect elimination and nourishing diet, of which he partook freely. Recovery was complete and uneventful in fifteen days.

CASE III.—Gertrude A., aged thirteen, schoolgirl. I was first called March 18. She had had several severe chills the preceding day; temperature 103°, pulse 110. Right hand and arm to several inches above elbow were enormously swollen. The line of demarcation was distinct at terminal of infected portion of arm. Diagnosis, erysipelas. Treatment: I emptied bowels and the bladder. Then I washed the arm with carbolic solution, applied 10-per-cent ichthyol ointment, and injected 20 cubic centimeters antistreptococcic serum (P., D. & Co.). Next morning the temperature was 99.5°, pulse 90. She was up and around the house. I bathed arm in carbolic solution and ordered plenty of good food and water. No further treatment was necessary. Recovery was complete, and she was back to school in ten days.

CASE IV.—Miss M., aged twenty-two, stenographer. I was called April 6. I found the young lady's nose, ears, and face badly swollen. Temperature 101°, pulse 110. Line of demarcation was very distinct. Diagnosis, erysipelas. Treatment: Calomel purge, sponge bath, applied 2-per-cent carbolic dressing, and injected 10 cubic centimeters of serum (P., D. & Co.). No further treatment used except asepsis of infected area. Recovery was complete in seven days.

CASE V.—John M., brother to above lady. Had galled himself by hard riding. I was called April 9. I found scrotum, buttocks, and thighs badly swollen and edematous. Temperature 104°, pulse 110. Diagnosis, erysipelas. Treatment: I washed infected parts with carbolic solution and applied 10-per-cent ichthyol dressing, and injected 10 cubic centimeters antistreptococcus serum (P., D. & Co.), directly into the infected thigh. Next morning temperature was 101°, pulse 100. I washed again with carbolic and reapplied ichthyol dressing. I gave 10 cubic centimeters more of the serum. Excepting for energetic catharsis and asepsis of infected area, no other treatment was used. Recovery was complete in seventeen days.

CASE VI.—W. W., aged thirty-eight, merchant. I was called April 27 and found the patient delirious. Temperature 105.5°, pulse 120. Back of head, shoulders, and surface down to lower region of scapula was largely swollen.

Scattered over the entire area were blebs of varying sizes. Line of demarcation was distinct. Diagnosis, erysipelas. Treatment: I bathed infected parts with carbolic solution and applied ichthyol dressing. Injected 20 cubic centimeters of the antistreptococcus serum (P., D. & Co.). Next morning temperature was only one degree above normal. The pulse was full and strong. I gave no more serum. Kept infected field as aseptic as possible and elimination free, with a nourishing diet. Recovery was complete in twelve days.

ADRENALIN CHLORIDE IN HEMORRHAGE COMPLICATING TYPHOID FEVER.

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A consideration of the following cases will illustrate the value of adrenalin chloride in typhoid fever, complicated with intestinal hemorrhage.

These cases were selected from a large number of typhoid fever patients during the severe epidemic of 1902, with the intention of demonstrating the value of adrenalin chloride in the treatment of hemorrhage complicating the disease. My experience with the drug after an extensive use warrants the following conclusions:

1. Adrenalin chloride is a most powerful hemostatic, and is especially applicable in hemorrhage complicating typhoid fever. It is superior to the other lauded astringents, such as morphine, lead salts, calcium chloride, iron salts, tannic and gallic acids and their compounds, but they can often be administered synergistically.

2. The best results wil be obtained only when the proper treatment of the disease is carried out, as is advised in well regulated hospitals at the present time.

3. The drug is particularly valuable in that it is also a decided vascular stimulant, stimulating the heart directly, and by contracting the arterioles it raises arterial tension.

4. Adrenalin acts both systemically and locally, and when the patient is in a very weak condition the hypodermic method of administration is preferable, as no unpleasant effects were noted after its use in a large number of cases.

5. Adrenalin acts similarly when administered per os, but its action is necessarily slower.

6. Adrenalin is indicated in all forms of hemorrhage, and it is the most powerful and rapid hemostatic known to therapeutics.

7. In hemorrhage complicating typhoid fever twenty-minim doses (1:1000) hypodermically every three hours should be administered, until the hemorrhage is entirely controlled, within at least twelve hours, when it can be administered per os in ten-minim doses for the next twenty-four hours. The usual method of applying ice to abdomen, elevation of the foot of the bed, and the avoidance of the use of fluids is strongly recommended as a valuable adjunct in the treatment of this dreaded complication.

Case I.—N. R., female, colored. Occupation, housewife. Previous history contains nothing of importance. First seen September 28, with temperature 104°. Five days preceding this she suddenly experienced a sharp pain in the right side of her abdomen a little below and to the right of the umbilicus, and nausea and vomiting supervened within the next hour. She had been feeling entirely well up to this time, and pursuing her usual duties as housewife. This pain was sharp and lancinating in character, but gradually grew less under anodyne remedies which were used, so that by the following day she experienced only a soreness on palpation or motion. Menstruation began coincident with the pain and continued the usual period of four days, and of usual quantity and color. Severe frontal and occipital pain in head at times during this period. Bowels constipated.

When first examined, September 28, temperature was 104°, pulse 120. Blood examination: Leucocytosis of 11,000. Spleen negative. Liver slightly enlarged. Abdomen rather tense over region of gall-bladder, and a mass could be detected in this region about the size of a walnut. Absolute rest and restricted diet were instituted, but temperature continued high. On September 30 leucocyte count showed 12,000; October 1, 9800. Tongue remained clear and fauces not indicative of typhoid fever. Nine days after treatment

had been instituted all symptoms of pain and rigidity over region of gall-bladder had disappeared, and abdomen was flat and soft, there being no evidence of any enteric symptoms, but owing to the prevalence of a typhoid epidemic and the persistent high temperature a Widal reaction was made daily, and on October 2 this was positive. On October 7 spleen became palpable and prostration more marked. October 8, about 6 P.M., there suddenly developed a severe hemorrhage from the bowel, and this continued for three and a half hours, during which time she lost over a quart of bright-red blood. Temperature dropped from 103° to 95°, but rose rapidly again to 101°, and then declined slowly, reaching normal two days later, where it remained. Pulse became quite weak and rapid, ranging around 164, and at times imperceptible. Foot of bed elevated, ice applied over abdomen. Hypodermoclysis of 1000 cubic centimeters of normal saline solution, with strong stimulation, using hypodermic injections of strychnine, atropine, and brandy as indicated for the vascular and respiratory systems. All fluids stopped. Solution of adrenalin chloride administered hypodermically—20 minims every hour for three doses, then every three hours after hemorrhage had ceased. Twelve hours later 1000 cubic centimeters of saline solution by hypodermoclysis, and stimulation gradually diminished; likewise adrenalin administration to four hours, and later dose reduced to 10 minims, and finally to 10 minims every six hours, and continued for next two days, when, there being no further evidence of hemorrhage, it was discontinued.

From this time patient made an uneventful convalescence.

CASE II.—A. H., aged forty-five, housewife. Previous history negative. First seen October 29, on seventh day of disease. Widal and diazo reactions positive, spleen enlarged, and roseolar rash present. Attack ushered in by malarial symptoms for a week preceding, which responded to quinine. The eighth day temperature reached 104°, and then began to decline. Patient did well until the seventeenth day, when she developed a hemorrhage of about 3 ounces of bright-red blood. Hypodermic injections of adrenalin chloride every three hours, with elevation of bed, ice to abdomen, and withdrawal of fluids, promptly controlled the hemorrhage, and the dose was gradually diminished. Temperature reached normal on the twenty-third day, and patient made a speedy convalescence. Patient received thirty-nine spongings.

CASE III.—W. R., male, aged thirty-five. Occupation, insurance agent. First seen November 7, on the tenth day of the disease. Then in the typhoid state, as there had been a severe infection from the start. Spleen enlarged; rose spots present. All symptoms of the typhoid state were present. Delirium almost maniacal at times, and patient had to be held in bed. Alcoholic history in this case. Temperature 103° at this time. Leucocyte count showed 3250. On eleventh day of the disease a hemorrhage of about 3 ounces of fluid blood occurred, and in six hours an equal amount exuded from the bowel, but this was darker in color and thicker in consistency. Pulse became weak and rapid, ranging around 150, and at times irregular. Elevation of bed, ice-cap to abdomen, and hypodermic injections of adrenalin chloride 20 minims every three hours were instituted, with excellent results, and no further hemorrhage occurred. Temperature reached normal on the twenty-first day, when leucocyte count was 6700. Turpentine for the typhoid state and morphine for the delirium produced good results, combined with proper vascular stimulation. Convalescence was rapid and uneventful.

CASE IV.—G. B., aged twenty-three, laborer. First seen on the sixth day of the disease. Temperature 103 1-5°. Widal and diazo reactions positive; spleen enlarged; rose spots present. On the thirteenth day a hemorrhage of about 4 ounces occurred, bright-red in color. Elevation of bed, withdrawal of liquids, ice to abdomen, and hypodermic injections of 20 minims of adrenalin chloride every three hours promptly controlled the bleeding, so that no further hemorrhage occurred. Temperature dropped from 103° to 99 1/5° at time of escape of the blood. Temperature reached normal on the third day, where it remained. Good convalescence.

CASE V.—M. B., aged twenty-seven. Occupation, housewife. First seen at the sixth day. Temperature 102 1/5°. Se-

vere infection, so that the temperature rose at times to 105° for a few hours. Widal and diazo reactions positive. On the seventeenth day hemorrhages developed, and seven hemorrhages occurred; in all about 32 ounces of blood escaped. Temperature declined to 98.5° after hemorrhage, and then gradually rose again. Pulse weak and rapid, at times 160, but reacted under strong stimulation of strychnine and digitalin. Elevation of bed, ice to abdomen, withdrawal of fluids, and administration of adrenalin chloride 20 minims hypodermically every three hours promptly controlled hemorrhage. Temperature declined by lysis, reaching normal on the twenty-second day, where it remained. Temperature remained near 105° for three days of fastigium and delirium, and tremors were marked. In this case subsultus tendinum was pronounced. Patient was highly neurotic, and unfortunately post-typhoidal melancholia developed, which has slowly improved in past few months, otherwise has done well. This was a most severe case, and toxemia was marked.

CASE VI.—E. C., aged nineteen. When first seen by me patient was in a critical condition. Enlarged spleen and rose spots present. Marked prostration. A few hours previously had two rather severe hemorrhages, leaving patient almost exsanguinated. Pulse rapid and dicrotic. Aortic stenosis present. Leucocyte count 3900. Associated bronchitis with rather severe tympanites present. Widal and diazo reactions positive. Marked febrile albuminuria, so that condition was almost moribund. Strong stimulation with strychnine and digitalin with brandy administered hypodermically. Turpentine for distention, with hypodermic injections of adrenalin chloride in 20-minim doses every three hours for hemorrhage. No further bleeding occurred, and patient recovered, making an uneventful convalescence.

CASE VII.—A. S., aged twenty-three, female. Under observation from sixth day. Spleen enlarged. Rose spots rather profuse. Widal and diazo reactions positive. Leucocyte count 5700. Associated bronchitis present. Marked prostration and toxemia. Neurotic temperament. Two days later she developed two hemorrhages, about three hours apart; the first was about 4 ounces, the second 2 ounces, and somewhat dark, believed to be a portion of the same hemorrhage which had been retained in the bowel. Considerable abdominal pain, especially over right hypogastrium. Ice to abdomen. Withdrawal of fluids and administration of gelatin by mouth with 20-minim hypodermic injections of adrenalin chloride prevented further oozing from the bowel. Temperature declined slowly owing to the associated bronchitis, reaching normal on the twenty-seventh day. Good recovery.

CASE VIII.—J. S., aged thirty-five. Occupation, carpenter. First treated on the fourth day of the disease. On the sixth day temperature was 100 1/5°; declined by lysis, reaching normal on the nineteenth day. Five days later it ascended to 103°, and a relapse occurred, during which time he was delirious for four days, and the typhoid state developed. On the third day of the relapse oozing in small quantities occurred from the bowel, continuing for four days, in which time he lost considerable blood. Two days later pain developed over the left ear, which increased for two days, when an abscess ruptured and the pus showed staphylococcic infection. Hemorrhage was controlled by 20-minim hypodermic injections of adrenalin chloride, gradually reduced. Speedy convalescence.

CASE IX.—W. G., aged twenty-three. clerk. On the sixth day temperature was 103.5°. Severe case of typhoid fever, with enlarged spleen, and rose spots present. Toxemia marked from the first, and patient profoundly prostrated. Temperature remained high despite treatment. Typhoid state developed on the tenth day, with all characteristic symptoms. On the twelfth day a hemorrhage of about 4 ounces of bright-red blood occurred, and the temperature declined to 99°, then rose in an hour. Morphine hypodermically with gallic acid and calcium chloride were administered by the mouth with strong stimulation, but in six hours a second hemorrhage occurred, and temperature again declined to 98 4/5°, and slowly rose, leaving patient in a profoundly weak condition. Pulse 138, respirations 42; so 500 cubic centimeters of salt solution was injected (hypodermo-

clysis). This improved the circulation, but oozing continued through the night, notwithstanding full dose of astringents. The next morning a third hemorrhage occurred of about 3 ounces of bright-red blood, so administered hypodermic injections of adrenalin chloride 20 minims at once, repeated in an hour, then every three hours, as patient was in a state of collapse. Patient slowly improved. Two hours later a slight hemorrhage of 5 ounces occurred, coming in a spurt, after which there was no further bleeding. From this time a steady improvement occurred, and the stage of convalescence was reached on the twenty-first day.

CASE X.—H. P., aged nineteen, teamster. Young man of frail build and weighing about 116 pounds, developed a severe attack of typhoid fever. First seen by me two hours after a severe hemorrhage which half-filled an ordinary basin. Condition critical. Temperature 94° by axilla, 95 3/5° by rectum. Appearance markedly pallid, and in a semicomatose state. Pulse 140, respirations 40 to 60. Febrile albuminuria with hyaline and granular casts. Abdominal distention marked, which was relieved by turpentine stupes. Under strong stimulation (vascular and respiratory) with inhalations of oxygen and hypodermic injections of adrenalin chloride in 20-minim doses patient slowly reacted, so that in an hour the temperature was 104 3/5°, and it slowly declined for the next two days. He continued in a very weak condition, as evidenced by a most pronounced toxemia and high temperature for the next ten days, so that salt solution by hypodermoclysis (500 cubic centimeters) was injected daily for five days. On the sixteenth day after the hemorrhage, during which time the patient remained in a stuporous and very weak condition, respirations became quite labored and pulse very feeble, amblyopia present, subsultus tendinum marked, and meningeal involvement became quite noticeable, so that lumbar puncture was resorted to and 120 cubic centimeters of fluid removed, which bacteriological examination proved to be sterile. The condition at once improved as a result of this latter proceeding. Urine at this time was alkaline and many pus cells were present. Patient remained in a semicomatose state, with pulse between 130 and 150, and respirations ranging from 40 to 60, for one week. He received alternately every one and a half hours 1/40 grain strychnine sulphate and 1/25 grain digitalin (pure) hypodermically during this time, with one teaspoonful each of liquid peptonoids and whiskey every two hours. He then improved gradually. Metastatic abscesses occurred at all portions of his body, and several bed-sores over lumbar region, notwithstanding every effort to prevent them. The patient slowly but steadily improved, and made a complete recovery in every particular.

ATTEMPTED SUICIDE BY MORPHINE DEFEATS SUICIDE BY POTASSIUM CYANIDE.

BY HENRY S. WIEDER, M.D.,
Assistant Physician to the Genito-urinary Dispensary of the Philadelphia Polyclinic Hospital; District Physician to the Northern Dispensary of Philadelphia.

The following case is rather unique as being one of the rare cases in literature in which an undoubtedly fatal dose of potassium cyanide was taken and followed by recovery of the patient. This marvelous result was not, however, due to any wonderful skill on the part of the writer, but to overzealousness on the part of the patient in his effort at self-destruction. The history of the case is as follows:

At 11.50 A.M., June 13, 1903, a "hurry call" reached the Presbyterian Hospital, and the writer was sent on the ambulance that responded to the call. Arriving at the home, the patient's wife informed me that the patient was thirty years of age, had three children, was an osteopathic student of rather morose tendencies, had overtaxed his strength by giving massage in addition to studying hard, and had on several occasions threatened to commit suicide, but had never before attempted it.

The night previous to the day in question the patient had searched all over the house for a revolver that he owned, but being unable to find it, he proceeded to take chloroform to the stage of complete anesthetization. On awakening in the morning and finding himself still alive, he tried to repeat the experiment, but this

time the chloroform was taken from him. Being defeated again, he next took one grain of morphine sulphate by mouth and half a grain by hypodermic injection.

Being now thoroughly aroused to the gravity of the situation the family sent for the ambulance. Upon my arrival the patient was conscious, pupils slightly contracted, but apparently in no serious condition from any cause, so I went down-stairs to get the stretcher, leaving him in charge of his wife and a servant. While down-stairs I was startled by a piercing cry from his wife, who met us half-way with a bottle of solid potassium cyanide which he had concealed in his bath robe, and from which he had succeeded in swallowing a couple of pieces a little larger than a pea, before having it taken from him.

Of course I thought this was the end of the patient, but fortunately, while I was preparing a hypodermic injection of morphine and digitalis, he vomited a large quantity of material, owing, in all probability, to the overdose of morphine or chloroform, or both. He had retained the cyanide over a minute. It is to this vomiting, to the fact that the cyanide was in solid form, and to the fact that his stomach was full at the time, that I believe he owes his life, for the materials were not in his stomach long enough to be dissolved and absorbed and fulfil their work of destruction. He was given aromatic spirit of ammonia by mouth, amyl nitrite by inhalation, and morphine, strychnine, and digitalis by hypodermic injection.

After about half an hour he was considered fit for transportation, and was removed to the hospital. He vomited frequently after admission, and his pupils were slightly contracted. He developed slight jaundice a day and a half after admission, but a good dose of calomel removed that. He was kept strapped for three days and then discharged.

This case illustrates the well known effects of large doses of morphine, especially when taken by mouth, and has taught the writer one lesson, if nothing else, and that is, when called to attend an attempted suicide, search him from head to foot, and if you must leave him, be sure to leave him under sufficient guard to prevent a repetition of his attempt.

THE THERAPEUTIC USES OF HAMAMELIS VIRGINICA.

By H. R. Coston, M.D.,
Birmingham, Ala.

Hamamelis virginica is tonic, astringent, hemostatic, antiseptic, and a vascular sedative, having a special action on the muscular coat of the vessels.[1] It causes coagulation of tissue albumen, thus constringing the superficial vessels.

Applied locally it is very useful in sprains, bruises, local congestions, fissure in ano, ulcers, varicose veins and the intractable ulcers which so often accompany them. It has been recommended for use in phlegmasia alba dolens, eczema, and rhus poisoning. Urticaria is rendered more bearable by its local use.

It is exceedingly useful in capillary hemorrhage. In cases of intermenstrual oozing where the endometrium is lax and congested, if fluid extract of hamamelis be swabbed over the entire inner surface the oozing will cease, and if repeated every few days it will become healthy. Many cases which were formerly subjected to curettement may be rendered perfectly well if this is faithfully followed up.

Sore and bleeding gums, relaxed uvula, and oral ulcers will heal if the following is used every two or three hours:

℞ Ext. hamamelis destillatæ,
Aquæ rosæ, ää f℥vj.
M. Signa: Use as a mouth-wash.

It possesses marked sedative properties, and patients will often cease to complain of pain in a sprained joint or congested area after a compress of hamamelis has been applied. The distilled extract makes a very nice application for burns and herpetic eruptions.

Hyperidrosis is relieved by sponging with hamamelis. A thorough rubbing with it will do much to relieve the soreness following an attack of rheumatism or the stiffness resulting from violent muscular action.

In a weak solution it will give nice results in hypertrophic nasal catarrh if sprayed on or applied with a mop.

For ulcers and varicose veins I prefer the fluid extract to the distilled extract, and use it full strength or with one-

[1] Brunton, quoting Dujardin-Beaumetz.

fourth or one-half glycerin or olive oil. For congested conditions of the hemorrhoidal vessels I use a suppository of solid extract of hamamelis and ointment of stramonium with cacao butter. If the bowels are first thoroughly cleansed much good will result from its use. Applied to abraded surfaces it checks oozing and leaves the surface in a healthy condition.

Given internally it is a tonic to all mucous membranes. It is valuable in hemoptysis, hematemesis, menorrhagia, metrorrhagia, and especially valuable in hematuria. I have used it in half-drachm doses in a case of hematuria of several months' standing in a woman fifty-four years old, and who was passing so much blood that it would settle in a thick coagulum in the bottom of the vessel, with a complete clearing up of the urine in a very few days after beginning to use it. That was two years ago, and the woman remains well. I had pleaded for an excision of the kidney, because it was easy, by means of the cystoscope, to locate the blood as coming from one kidney alone.

I have used it in urethral bleeding in the male with most excellent results. Brunton notes a case in which it always caused seminal emission. He also says it lessens the pain in some forms of dysmenorrhea.

In hemoptysis it may be combined with ergot and digitalis; in hematemesis it should be given with a solution of adrenalin.

Briefly, hamamelis is valuable in all forms of capillary and venous hemorrhage. It possesses special action on the muscular coats of the vessels, and hence is valuable in all forms of vascular diseases accompanied with distention of their caliber, as in varicocele, varicose veins, varicose ulcers. It should be used both locally and internally.

It is an excellent application when one desires a sedative, astringent, and antiseptic dressing.

NEUROMATA OF THE AXILLARY NERVES.

WYETH (*Journal of the American Medical Association*, June 25, 1904) has met with four cases of neuromata of the axillary nerves—all in women. Each of these cases was accompanied by severe neuralgic pains and restricted motion, but in no case with complete paralysis of any muscle or group of muscles in the extremity. In two cases the pain became so severe that the patients were becoming addicted to morphine and insisted on radical means of relief.

In two instances the tumor was fusiform and had produced swelling in the substance of one cord of the axillary plexus, to four or five times its normal size. They were removed by excision, with relief of pain at the expense of paralysis of the muscles supplied by the affected cord. Both patients were entirely satisfied with the result; both were living ten and twelve years respectively after the operation, and in excellent general health.

In the third case the thickened sheath of the nerve was excised. Three months have elapsed since the operation, and while the symptoms have not entirely disappeared, they are much less severe, and the patient expresses entire satisfaction.

The fourth patient, a woman aged twenty-four, noticed a slight supraclavicular swelling, which had been preceded by peculiar sensations in the left arm and forearm. Exposure of the axillary contents disclosed two fusiform neuromata, one involving the outer and one the inner cord of the brachial plexus. These neoplasms were fully one-half inch in diameter, and were so situated that unless the arm and the shoulder were elevated they were compressed between the clavicle and the first rib. Realizing that excision would produce almost complete paralysis of the upper extremity, Wyeth divided the clavicle, closed the wound, and immobilized the shoulder and arm in such a position that union took place with the collar-bone arched sufficiently high to avoid pressure on the neuromata. For two or three years after this operation, although there appeared to be still further enlargement of the neuromata, the patient's condition was vastly improved. Thirteen years have now passed, and for the last decade no further enlargement is perceptible. The left arm is larger than the right, while the forearm is quite normal. The patient's general health is excellent, and the only unpleasant symptoms which persist are occasional darting pains, usually in the left arm, but sometimes in the opposite arm and leg.

The Therapeutic Gazette

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Leading Articles.

THE TREATMENT OF BRIGHT'S DISEASE.

Fully fifteen years ago the writer of this editorial began to advocate the employment of a more generous diet in the treatment of chronic renal disease, and increasing experience has firmly convinced him that a generous diet in the majority of instances of this malady, provided digestion is in fairly good order, produces much better results for the patient than the institution of a rigid milk diet which for so many years has been popular with the profession.

We are glad to notice that before the Section of Medicine of the last meeting of the British Medical Association Dr. Hale White, of London, took a strong stand in favor of feeding patients with chronic Bright's disease with an adequate quantity of nourishing material. The loss of albumen through the kidneys is easily compensated, and rarely amounts to enough to cause any drain upon the general system. In other words, albuminuria is not a symptom which requires the employment of remedies, dietetic or otherwise. He well says that under the impression that a small supply of milk is the best diet for diminishing work of the kidneys, the patient with chronic nephritis is starved, and his heart suffers starvation—a state of affairs made worse by the fact that as the arteries thicken, the heart's work increases. Speaking of the most common type of chronic Bright's disease, namely, interstitial nephritis, he expresses the belief, in which we coincide, that as a rule the disease is treated too zealously, and that in the desire to spare the kidneys the patient is starved, with the result that the only means by which the degenerative process can be retarded, namely, the maintenance of general good health, is impaired. As we do not know of any articles of ordinary diet which can be considered really harmful in granular kidney, it is best to give the patient ordinary plain digestible foods containing the normal proportions of proteids, fats, carbohydrates, and salts, just as it is necessary to give a person in health a similar mixed diet. It need hardly be stated that highly seasoned foods, or foods which are difficult of digestion, should be interdicted. Again, we are glad to note that Dr. White is in accord with us in believing that the limitation of these patients to a diet of chicken and fish without any red meat is entirely unnecessary. Not only does such a limitation do no good, but it is often harmful in the sense that it makes the patient consider himself seriously ill, and also diminishes his appetite.

In connection with the treatment of chronic parenchymatous nephritis, Dr. Hale White is even more emphatic, believing that a limited diet makes the misery of the patient greater, and as there is no possible hope of recovery, there is no use in making him suffer by depriving him of articles of food which he desires. As most cases of parenchymatous nephritis do not survive eighteen months after the beginning of the disease, do what we will in the way of treatment, the institution of a strictly limited diet simply adds to the discomfort.

Much discussion has existed amongst physicians as to the quantity of water which should be allowed patients suffering from Bright's disease. Some believe that the amount should be as small as possible

on the ground that it engorges the vessels and increases the labor of the heart. That this cardiac influence is an important one we doubt, but as Edsall and others have shown that excessive water-drinking increases nitrogenous metabolism, and as the kidneys in Bright's disease are unable to deal with the products of normal metabolism, it would seem evident that excessive quantities of water must be harmful. On the other hand, there can certainly be no good result from depriving the patient of water to the extent of making him suffer.

The employment of a rigid milk diet in the treatment of Bright's disease is, we think, an illustration of the willingness of many physicians to follow the advice given them in text-books without a careful consideration of the pathological and physiological conditions which may be present in the individual patient, and we think we can state, without fear of contradiction, that the physician of to-day who proscribes the red meats and insists upon a milk diet on the part of a patient suffering from chronic nephritis is following a fashion, rather than a method suggested by a careful consideration of the action of these foods in the body, and the condition of the kidneys and the tissues in general during the progress of this disease.

THE RELATION OF EYE-STRAIN TO NERVOUS DISORDERS.

Many years ago Dr. S. Weir Mitchell first succeeded in impressing upon the mind of the medical profession the fact that errors in refraction and insufficiencies of the external ocular muscles were capable of producing disorder of nervous function in other portions of the body than the eye. Without doubt this clinical observation of Dr. Mitchell has proved itself to be an exceedingly valuable one, and has resulted in the recognition and relief of a large amount of suffering which drugs can only palliate, but which properly adjusted glasses can often relieve. Unfortunately, the truth which underlies this discovery has been magnified until certain persons profess to believe that a host of pathological conditions may have their origin in eye-strain, and medical literature during the last fifteen years, and more particularly within the last two or three years, has fairly teemed with productions which while they have been advantageous in the sense that they have drawn attention to the importance of this subject, have nevertheless been so excessive in their claims that experienced and conservative physicians, and ophthalmic surgeons, have been at once amused and annoyed by efforts devoted to making eye-strain an almost universal cause of disease.

We have read with much interest and amusement a paper presented to the New York Academy of Medicine by Dr. Dana, who first calls attention to the fact that the eye seems to be the only organ which is popularly associated with a strain, for, to use his words, "we do not hear of ear-strain nor tongue-strain, stomach-strain nor kidney-strain." Dr. Dana discusses the question as to whether cerebral strain resulting from abnormalities in the eye plays a part in the production of psychoses or morbid mental states. He asserts that alienists, without exception, do not recognize eye-strain, even as a contributing cause, so far as the major psychoses are concerned, and adds that after sixteen years of watching he has found hardly any cases in which eye-strain has been an important and direct factor in establishing even a minor psychosis. He concludes that perhaps, after all, the "most real psychosis connected with eye-strain is that shown by a group of enthusiastic oculists who have become obsessed with the idea that eye-strain forms the background of most pathological conditions." At the same time the writer of this editorial and Dr. Dana are nevertheless in accord, for we both believe that eye-strain should be carefully looked after, but don't believe that our "mental balance and nervous well-being are entirely at the mercy of slight defects in the eye," to use Dr. Dana's words.

THE TREATMENT OF ANEURISM BY WIRE AND ELECTROLYSIS.

Several times within the last few years our original pages have contained articles upon this subject, and our editorial columns have called attention to the rather remarkable fact that although this operation has now been performed quite frequently, no accident has occurred during its performance; that is to say, there is

no case on record, so far as we know, in which rupture of the aneurism occurred when the puncture was made, nor has an embolus been carried to other portions of the body during the passage of the electric current, except in one instance in which a fusiform aneurism was submitted to this operation, which form of aneurism is, of course, unsuited to the wiring procedure.

For these reasons we are much interested in the report of a case of sacculated aneurism of the aortic arch treated by the introduction of a silver wire, and the passage of an electric current, by H. A. Ballance, in the *Lancet* of October 1, 1904. The details of the case possess no unusual interest, but the autopsy, which followed ten months after the operation, not only revealed the presence of the wire in the aneurismal sac, but also showed that it had been carried into the aorta as far as the left common carotid artery, and into the ventricle to its apex, showing therefore that even if the coiled wire perchance enters the cavity of the ventricle, it apparently does not produce any evil effect.

Personally, we much prefer the employment of gold wire to silver wire. As pointed out by Mr. Ballance, silver wire does not readily keep its twist when it is uncoiled and passed through the needle. The gold wire which we have used we are confident could not have been so twisted and distorted by the action of the blood current as was the silver wire in Ballance's case, and while in his case the result was not disastrous, it is certainly unsatisfactory not to have the wire coiled in the area where the aneurism exists.

As in most other cases which we have seen and which have been reported, the passage of the electric current brought about firm coagulation in the sac, and yet did not interfere with the main blood current to other portions of the body.

A NEW METHOD OF MODIFYING COW'S MILK AS AN INFANT FOOD.

Some of our readers may remember that within the past year we called attention to an exceedingly interesting research carried out by Wright and Knapf upon the causation and preventive treatment of thrombosis occurring during typhoid fever. In that editorial we pointed out that Wright and his colaborer had expressed the view that a predisposing cause of thrombosis in this disease lay in the administration of full quantities of cow's milk, which, as it contained a large quantity of lime salts, tended to increase the coagulability of the blood, and therefore predisposed the patient to the formation of thrombi. It was suggested by these investigators that it would be wise, under these circumstances, to administer citrate of soda in small doses, since the milk would, in this manner, be "decalcified," if such an expression is permissible.

We have now offered to us the suggestion of Dr. Poynton, one of the assistant physicians to the Hospital for Sick Children in Great Ormond Street, London. that a similar application be made of citrate of sodium in order that cow's milk may be made more digestible for infants who are bottle-fed. After asserting that he is a believer in the view that exact modifications of cow's milk for infant feeding are not as necessary as some have thought, Dr. Poynton emphasizes the fact that in many instances it is the firm masses of casein which are really the cause of indigestion, and as cow's milk is the only milk which can be readily obtained, particularly by the poor, for the nourishment of their children, he advocates the employment of one to two grains of citrate of sodium to the ounce of milk to diminish the coagulability of this ingredient. To illustrate the advantages of this method of treatment he cites both laboratory and clinical experiments. Taking three test-tubes, he placed an ounce of milk in each one. To the first he added five drops of rennet, and five drops of a normal solution of hydrochloric acid. In the second tube he placed boiled milk with the same additional ingredients, and in the third tube he placed the same ingredients plus three grains of citrate of sodium. When these three tubes were exposed to the heat of an incubator designed to represent the temperature of the human stomach, it was found that in both No. 1 and No. 2 there was a massive clot of casein, while in No. 3 the clot was very fine, and more translucent than that of the others. The quantity of citrate of sodium used in these tubes, however, was in excess of that

which is ordinarily required, one grain being often sufficient. His method of ordering citrate of soda is to write a prescription for citrate of soda and distilled water, one drachm of which contains one grain of the acid, the directions being to add a teaspoonful of the fluid for each ounce of milk which is taken by the child.

Citrate of sodium is cheap, costing only about four cents an ounce. It is readily soluble and more effectual than citrate of potash. Neither does it possess the depressant effects of the potash preparation. It is often necessary, when the solution is to be kept for some time, to add a few drops of chloroform water to prevent the growth of a fungus which sometimes forms in the solution. As the citrate of soda is a neutral salt it does not interfere with gastric juice. The only disadvantage of its employment seems to be that it has a tendency to produce slight constipation, although Dr. Wright has never noted this difficulty in his experience.

In regard to the clinical results which Poynton has obtained, he asserts that this method has the advantage over sterilized milk of in no way interfering with the vital properties of the normal fluid, that the child does not object to the taste of the milk because of the addition of this substance, and finally, it enables many children, whose digestion is too feeble to deal with ordinary casein, to take the normal quantity of proteid at a feeding without suffering from indigestion. He recognizes, of course, that the plan has its limitations, and that in cases where there is a very great feebleness of digestion it cannot be a means of avoiding the use of peptonizing substances, nor can it do good in those cases in which, because of severe illness or congenital defect, the child is quite incapable of digesting casein at all. Neither does this plan in any way interfere with the dilution of cow's milk in such a way that it will approximate human milk. On the other hand, it not infrequently happens that when cow's milk is diluted with water sufficiently to bring its casein to approximately the quantity found in human milk, the cream and the carbohydrates are so diminished that it is necessary to add fresh cream and sugar of milk to bring these constituents to their normal level. Cheadle gives the proportions of the ingredients of human and cow's milk as follows:

Proteids, Human milk	1.5
Cow's milk	3.0
Fat, Human milk	3.5
Cow's milk	4.0
Carbohydrates, Human milk	6.5
Cow's milk	5.0

Often it is impossible to get fresh cream, particularly in cities, even when pure milk is obtainable. Cream also not infrequently contains a far greater number of microörganisms than does the milk from which it is skimmed. Under these circumstances it will often be possible to use cow's milk without the same degree of dilution by increasing the digestibility of the casein through the use of citrate of sodium.

So confident is Wright of the efficacy of this method that he advocates the administration of undiluted cow's milk, believing that many children can digest it, if the curd is rendered semisoluble by the citrate of sodium.

SPINAL COCAINIZATION.

The wane of the enthusiasm which swept the profession concerning the utility of spinal cocainization, followed by the prompt abandonment of the method, and the complete silence of the journals concerning it, attract attention to an apparent recrudescence of confidence and belief in this method on the part of Gubb, who (*Bristol Medico-Chirurgical Journal,* No. 85), with surprising indifference to the enormous literature bearing upon this subject, gives explicit directions as to how the operation should be performed, and lauds it as superior to either ethyl chloride or chloroform, in obstetrical cases. Greer, in the same magazine, contributes a paper which suggests those to be found in almost any medical journal at the time the method was in greatest vogue, though he notes that one observer records 8 deaths out of a total of 2000 cases. These calamities, he justly states, demand very careful attention, and indicate that the surgeon should render himself thoroughly acquainted with that technique which has the least of any mortality, a conclusion from which few will differ.

Although a method of making cocainization of the spinal cord, or rather anes-

thetization, by means of the intraspinal medication, not only efficient but entirely safe, may be found, there is abundant proof that the method so extensively used and so generally abandoned is attended by so great mortality that its use is entirely unjustifiable save in the most extraordinary instances. It seems somewhat singular, in the face of the enormous literature upon the subject, to find articles appearing that suggest the procedure as a novelty.

AMPUTATION OF THE LOWER EXTREMITY.

Since aside from the saving of life the ultimate end of amputation should be the leaving of the most useful stump to the patient, a study of amputations of the lower extremity from this standpoint by Murphy (*Report of Research Work, Medical School of Harvard University,* September, 1904) is most serviceable. He points out that the popular belief to the effect that as much should be saved as possible, incident to the one time imperfections of artificial appliances, still obtains, though these appliances have been so greatly improved as to make people who have been subject to amputation practically able-bodied. The records of 500 cases were taken. The patients were written to in regard to subsequent usefulness of the stump. Amputation by the so-called Syme's, Pirogoff's, Chopart's, Lisfranc's, Hey's, etc., methods, with their modifications, failed to accomplish good results in about 33 1/3 per cent. The makers of artificial limbs hold that the remnants from such amputations are so imperfect that the operations should be generally condemned. Even under the most favorable conditions it was a question whether these amputations gave a stronger supporting limb than a tibial stump. Any appliance other than a simple cosmetic false foot which offers little or no support is cumbersome, and difficult to fit to the patient.

Going above the ankle-joint, the opinion was unanimous that the long stumps obtained in amputations through the lower third of the leg were undesirable. Lengths between six and ten inches measured from the lower border of the patella were acceptable. The longer stumps show a tendency to swell at the end, and the greater leverage without material gain in handling the foot increases the liability of play in the socket, thus causing irritation of the anterior border of the tibia. A stump shorter than six inches does not give sufficient leverage. When the tibial stump must be shorter than two inches, the amputation should be carried above the condyles, unless the patient would be content to wear a cumbersome peg. A femoral stump should be left as long as possible, provided the condyles of the femur be removed. Measured from the perineal fold, any thigh stump longer than five inches is satisfactory and useful. The end pad should be good but not redundant. The bony prominences should be beveled and the nerves resected.

After amputation the stump should also be bandaged, since otherwise the soft tissues hypertrophy and become flabby, necessitating later the wearing of a "shrinker" before a socket can be fitted.

The cost of artificial limbs varies from fifty to a hundred dollars. With ordinary use and good make, repairs are necessary only once or twice a year, the cost of which is insignificant.

Murphy, as a result of his research, advises anterior and posterior muscle flaps in preference to the circular cuff of skin. The fibula should be cut off at a higher level than the tibia in leg amputations. Care should be taken to bevel off bony prominences, such as the sharp anterior tibial edge; and good muscular flaps should be formed.

This contribution, based on a careful study of the after-course of many cases, is timely and convincing.

VENEREAL DISEASE IN THE ARMY.

It is obvious from the Surgeon-General's annual report that the number of admissions to the hospital and discharges from the service, because of gonorrhea, chancroid, and syphilis, is slightly less than that of last year. None the less it is somewhat discouraging to those who believe that by legislation and medical supervision these diseases can be wiped out, or at least greatly diminished in prevalence, to note that with the exception of malaria and skin diseases the largest

number of admissions to the hospital was incident to gonorrhea, though chancroid and syphilis contributed a considerable number. It is fair to assume, since there is no special report covering this subject, that the efforts at eliminating the diseases by inspection of prostitutes in the Philippines have not been entirely successful. It was to be hoped that during the military occupation of these islands there might be sufficient data on which to found a judgment in regard to the efficacy or non-efficacy of such measures. At the present time the evidence on this subject seems so conflicting that, aside from moral considerations, a very good case can be made out in regard to the futility of legal restrictions.

Reports on Therapeutic Progress

NOTE ON THE SERUM TREATMENT OF EXOPHTHALMIC GOITRE.

MURRAY contributes to the *Lancet* of August 27, 1904, the results of this line of treatment. In his experiments, commenced last year, the author endeavored if possible to obtain an antitoxic serum in as simple a manner as possible for the purposes of practical treatment, and so made use of rabbits and fed them with thyroid extract by the mouth. This is easily done by using a hypodermic syringe without a needle and injecting the dose into the rabbit's mouth, when owing to the sweet taste it is readily swallowed. On October 18 five rabbits, varying in weight from 4 pounds 1 ounce to 6 pounds 12 ounces, and one Belgian hare weighing 7 pounds 13 ounces, were given each ten minims of liquor thyroidei each week-day. On October 25 the Belgian hare aborted, and so the treatment was discontinued for a time. On October 31 the daily dose was reduced to five minims, as the animals were losing weight on the larger dose. This was continued up to November 20, when the first rabbit was killed by bleeding, and the blood was collected with aseptic precautions into two sterilized flasks. These were allowed to stand for forty-eight hours, after which the serum was decanted into small sterilized glass bottles, 0.2 per cent of carbolic acid was added, and the glass stoppers were sealed with paraffin. Several batches of serum were prepared in a similar manner, the dose of thyroid extract given and the length of time of administration being varied. It was found that for prolonged administration a dose of five minims three times a week was as much as could be given to a rabbit without causing progressive emaciation. When larger or more frequent doses were given continuously the animals progressively lost weight, and even died in two instances. Before employing this serum in the treatment of exophthalmic goitre ten minims of it were injected into a rabbit. No ill effects followed until three weeks afterward, when the rabbit became ill, the forelimbs were rigidly flexed, the eyes widely opened, and there were general tremors. These symptoms soon disappeared completely, and it is doubtful if they were due to the serum injected three weeks previously. The following two cases of exophthalmic goitre were treated with the serum prepared in the manner described above:

CASE I.—A single woman, aged 20 years, was admitted to the Newcastle Royal Infirmary on December 22, 1903. Prominence of the eyeballs had first been noticed eighteen months previously; six months later the goitre developed. She complained of nervousness, palpitation, and loss of weight. This patient was a typical case of exophthalmic goitre, with well marked enlargement of the thyroid gland and exophthalmos, Stellwag's and von Graefe's symptoms both being present. After she had been in the hospital for a fortnight the pulse was found to vary between 96 and 124. Serum treatment was commenced on January 9, 1904, five minims being given by the mouth each night. On January 12 this dose was given three times a day. On the 15th the dose was increased to seven minims, and on the 22d to ten minims. After this seven minims was given (with the exception of four days) thrice daily up to February 8, when it was stopped. After this electrical treatment was given for a fortnight. From February 23 to March 9 Moebius's antithyroid serum prepared by Merck was given in five-minim doses thrice daily. While taking the writer's serum the patient gained in weight, the tremor diminished, the breathlessness dis-

appeared, and the exophthalmos became less marked. She also continued to improve under the influence of the electrical and Moebius's serum treatment. In this case, however, the improvement was nothing more than what frequently takes place in a patient at rest in a hospital ward on the ordinary medicinal treatment, and the author was unable to trace any special effect to either of the two sera employed.

CASE II.—In a case of exophthalmic goitre of five and a half years' duration in a single woman, aged nineteen years, the serum was given for three weeks in similar doses. The pulse diminished in frequency somewhat, but no special effect could be attributed to the serum in this case either.

Although no very definite results have been obtained in these cases, it is quite possible that if larger animals were employed and larger doses of thyroid extract were given a serum might be obtained which could be used for hypodermic injection in acute cases or for administration by the mouth in chronic cases where prolonged treatment would be required, and for this reason the author thought it advisable to record the above observations.

NON-OPERATIVE TREATMENT OF TRACHOMA.

PARKER gives these instructions to those having trachoma, in the *Medical Record* of September 17, 1904:

Trachoma is a contagious disease of the eyelids, which if neglected will cause suffering and injury to the sight. To avoid infecting others, those having the disease should observe carefully the following instructions:

1. They should have their own towels, handkerchiefs, wash cloths, and toilet articles, and under no circumstances should they be used by others.

2. They should sleep alone.

3. Avoid rubbing or touching the eyes, as the contagion may be carried on the fingers and infect others through articles handled.

4. The hands should be cleaned often with soap and water.

5. Treatment should be attended to regularly and continued until pronounced cured by the physician.

The author has found good results from this, and the fact of their having a contagious disease has been so impressed upon patients that they and their parents have sought further advice as to the details of the precautions they should take.

Proper feeding and out-of-door life are to be urged; adenoids and other hindrances to development should be removed. The one rule to emphasize is, that the treatment should be continued until the patient is pronounced cured.

In the treatment of the eyelids nearly all the astringents in the Pharmacopœia have been tried. Silver nitrate, two-per-cent solution, has met with favor among a large number. In the author's opinion it should never be used in a case of marked trachoma, on account of the silver stains which result from prolonged use. Formalin and citrate of copper have been recommended by some. But without further mention of the many treatments recommended, the author gives us the results of his own observations.

In the first and second stages of the soft follicular variety he regards rubbing with a strong solution of bichloride of mercury (1:500) as a procedure to be highly commended, and the method of doing this is as follows: A hard cotton applicator is rolled and dipped in a 1:500 bichloride solution. After the eyes have been thoroughly cocainized, the lids are everted and the surface given a vigorous rubbing—especially in the folds of the upper lid, along the tarsal cartilage. This rubbing is done three times a week, and the patient is directed to use iced cloths at home if the reaction is violent, which seldom happens; the treatment that the patient is directed to carry out at home is the use of drops of some organic silver solution, night and morning.

This treatment is continued until the conjunctiva is smooth. It is followed by a solution of tannic acid, 40 grains to the ounce of glycerin.

In the variety of trachoma in which the hard follicles are present, the one treatment that has stood the test of years, and still stands at the head, is the crystal of copper sulphate. A convenient form of using this is a crystal, ground smooth and mounted in a wooden handle. It should be applied to the conjunctiva with

the upper lids everted, the patient looking down, so as to avoid contact with the corneal surface. The crystal is applied gently in the upper cul-de-sac, and the same way in the lower. A solution is quickly formed by the tears. Then flush the eye with a boric acid solution, removing the excess and relieving the severe pain which often follows this application. The frequency of the application is determined by the severity of the case. The author never uses this over three times a week. The use of cocaine to modify the pain he regards as a fallacy. The momentary pain of the application may be lost, but the pain following the loss of the anesthesia is just as bad as if no cocaine had been used. These cases are also given the silver solution for use night and morning.

In the third stage, with the cicatricial contraction of the lid and pannus, the author has had good results from rubbing the surface with oleum ricini and making very superficial linear scarifications with the knife. The application of copper is indicated in many of these cases, and much benefit is derived from its use. The pannus is treated as a keratitis, with hot applications and atropine. The larger vessels may be divided at the corneal margin by the actual cautery. The powdered jequirity bean, at one time in vogue, is little used at present. It is a rather dangerous procedure, and if ever used, it should be only in those cases in which there is dense keratitis and pannus.

To sum up in closing, surgical treatment should be advised only in those cases in which soft frog-spawn granulations are present. It should always be followed by after-treatment. Operations should not be performed in cases in which the hard, deep-seated granulations are present, on account of the injury done to the conjunctiva in removing them. The habits and general condition of the patient are very important features to be considered in preventing spread and effecting cure.

The non-operative treatment that the author recommends is the bichloride rubbing, with the use of one of the organic silver solutions night and morning. In the hard variety, the use of copper sulphate and the silver solution.

FORMALDEHYDE IN MILK.

This mooted topic is placed before us once more by TEBB in the *Lancet* of August 27, 1904. He thinks that in view of the recent outbreaks of "epidemic skin disease," the accurate estimation of formalin in milk becomes a matter of considerable importance, and the object of the present paper is to recommend to notice the following process, which will be found to give trustworthy results. The method depends on the pink color which develops when fuchsin decolorized with sulphurous acid (Schiff's reagent) is added to the clear filtrate obtained after the precipitation of casein and fat from diluted milk. It has long been known that if milk is diluted and acidified the whole of the casein and fat may be precipitated, leaving a clear liquid on filtration. The author first made experiments to see if milk containing formalin would retain the preservative on being subjected to this treatment, and also if the depth of color given by Schiff's reagent was in proportion to the amount of preservative present. These preliminary tests were entirely satisfactory, and he has since worked out the process in detail as follows:

To Precipitate the Casein and Fat from Milk.—To estimate formaldehyde by this process it is essential to obtain a perfectly clear filtrate from the milk, and after numerous experiments the following is the method which the writer has found to answer best: Fifty cubic centimeters of the sample is measured out into a tall cylindrical glass of 250 cubic centimeters capacity, the glass is filled up to the 250 cubic centimeter mark with water, the milk and water are well mixed together, and then is added 0.4 cubic centimeter of a 25-per-cent solution of sulphuric acid. The mixture is well agitated with a glass rod for a minute or so. The casein and fat will then separate as a coarse precipitate, leaving a more or less clear liquid at the top. The precipitate is allowed to settle for about five minutes, and then the liquid is filtered. The author uses a large funnel of four and a half inches diameter with Chardin filtering paper, which must first be well wetted. In the majority of samples the filtrate will come through quite clear, but occasionally it will be opalescent or even milky; when this happens the remainder of the 250 cubic centi-

meters should be poured on to the filter, and it will be found that after about 100 cubic centimeters have gone through the filtrate will become quite clear; this is owing to the precipitate itself lining the inside of the filter and increasing the filtering power of the paper. By attention to these details the author has never had any difficulty with fresh milk, and has often been successful with milk a day old, but, as presently pointed out, for reasons connected with the rapid disappearance of the formaledhyde, whenever possible the analysis should be conducted on the day the sample is purchased.

Preparation of the Schiff's Reagent.—One gramme of ordinary crystalline fuchsin (not the acid fuchsin) is weighed out and placed in a 50 cubic centimeter flask, which is filled up to the mark on the neck with a cold saturated solution of sulphurous acid in water. The sulphurous acid solution may be conveniently prepared by means of a siphon of the compressed gas. After standing for several hours the fuchsin loses its color and goes into solution, the liquid assuming a light yellow tint. Then the 50 cubic centimeters is diluted to one liter with distilled water, and proceed as follows: Two Nessler glasses are taken; to one of them is added 0.5 cubic centimeter of a 1-in-1000 dilution of formalin, and both glasses are filled up to the 50 cubic centimeter mark with water; then five cubic centimeters of the Schiff's reagent is added to each glass, which is stirred and allowed to stand for ten minutes. It will be found that both Nessler glasses show a marked pink color—that is to say, at this stage the simple dilution of the reagent with water will give a similar reaction to the formaldehyde. To make the Schiff's reagent sensitive sulphurous acid gas is bubbled in from the siphon for about ten seconds at a time until a point is reached when it will react in the Nessler glass containing formalin, but not with the plain water after standing for ten minutes. If the reagent is too strongly impregnated with sulphurous acid it will cease to react to the formalin, and hence the care required in conducting these operations. The author finds that 250 cubic centimeters of the Schiff's reagent prepared as above (0.1-per-cent fuchsin) will be made sensitive by bubbling in the gas at a medium rate for about thirty or forty seconds.

Application of Test.—Fifty cubic centimeters of the clear filtrate from the sample of milk is poured into a Nessler glass, five cubic centimeters of the Schiff's reagent is added, and the mixture is allowed to stand for ten minutes. In estimating small traces of formaldehyde, which may readily be done if the Schiff's reagent is sufficiently sensitive, it is advisable to allow the liquid to stand for a longer period—that is to say, for half an hour or even an hour. To estimate the exact percentage of formaldehyde a number of standards must be prepared of known amounts of formalin added to milk. Each standard is treated by precipitation, filtration, etc., in precisely the same manner as the sample. The Schiff's reagent is then added, and the color of the sample in the Nessler glass is matched with the nearest standard. In ordinary milk adulteration one should expect to find from 0.002 to 0.001 per cent of formaldehyde, and should make up eight standards containing 0.002 per cent, 0.001 per cent, with six intermediate percentages. If the Schiff's reagent is already prepared the whole analysis, including the precipitation, filtration, etc., of the eight standards can easily be completed within an hour.

HYPODERMOCLYSIS.

SOUTHER in the *Cincinnati Lancet-Clinic* of September 17, 1904, gives the following indications for its use, and considers each in the order of its importance as nearly as possible:

1. Hemorrhage: Postpartum, typhoid, accident and trauma, ectopic pregnancy rupture, during operation, excessive hemorrhage from any cause.

2. Infections and toxemias: Sapremia, septicemia, pyemia, pneumonia, typhoid fever, acute infections, smallpox, etc.

3. Suppression of urine: Anuria, uremia not associated with dropsy.

4. Shock: Postoperative; shock of pronounced character from any cause.

5. Inability to otherwise introduce sufficient amount of fluids into the system.

6. Concentration of the blood with increased red and white count, plus inability to take sufficient fluids.

7. Before operative measures when

patients are extremely anemic or have been losing blood continually, and operations necessarily bloody on aged subjects.

8. Postoperative thirst, in presence of rebellious stomach.

9. Threatened collapse in cholera infantum, cholera morbus, Asiatic cholera.

10. Shock and toxemia of severe burns.

11. B. S. Heidenbug calls attention to the virtue of hypodermoclysis in the treatment of insanity. "The cases especially benefited are those due to infectious, toxic, or autotoxic origin. Treatment is well borne and patients do not object to it."

The following are the contraindications:

1. Apoplexy and arteriosclerosis.

2. Sudden impending death from dilated right heart, and any condition that has a similar physical basis.

3. Sudden collapse in chloroform and ether narcosis, because it is too slow. Intravenous infusion, artificial respiration, Trendelenburg position, and oxygen are so far superior here that hypodermoclysis ought never to be tried.

4. Pulmonary edema.

THE RED LIGHT TREATMENT OF SMALLPOX.

RICKETTS and BYLES in the *Lancet* of July 30, 1904, state that there are but two published observations favorable to the red light treatment. Brayton, of Indianapolis, has recorded a series of about 300 cases. He has not published details of his cases, but he took the precaution of treating at the same time an equal number of patients in wards lighted by the ordinary methods. He found that in no respects did the patients under the red light treatment do any better than the others. Suppuration, fever, scarring, and death were all unchecked.

The writers believe they have succeeded in showing not only that the case for this method of treatment is not proved, but that no serious evidence has been advanced in favor of it, and recommend those who are disposed to practice it to do as Brayton has done and to treat at the same time an equal number of patients in ordinary wards. We would suggest also that as it only clouds the issue and prolongs the trial to include the mass of mild cases in vaccinated persons, it would be better to limit the trial to unvaccinated patients. When a sufficient body of evidence in support of the treatment has been collected on these lines, it will be time enough for the matter to be pressed on the attention of the profession. They are not disposed to embark on the inquiry for the reason that they derived from their cases the very unpleasant impression that the effect of the treatment was harmful. They thought that it had an unfavorable effect on the general condition of the patient. The tendency to mental symptoms (delirium, headache, restlessness, etc.) seemed more marked. The suppurative fever, too, appeared to range higher than might have been expected. It is true that they found the patients did well in respect of affections of the eye; that was to be expected. But, on the other hand, they thought that they had more than their fair share of the other septic sequelæ of smallpox.

They cannot say how far these impressions were justified by the facts. Assuming that they were right it is, of course, possible that some of the results were attributable to the oppressive gloom and color of the ward. But their objections lie deeper than that. For not only was it difficult to keep a close watch on the development and progress of the eruption and on the patient's condition, but it was difficult to carry out those personal and general hygienic measures on which the successful treatment of smallpox so much depends. Above all, in excluding light we must necessarily limit the supply of air. In all suppurative conditions, and especially in smallpox, not only an abundant air space and good ventilation but the freest circulation of air is essential. Any form of treatment which puts a check on the supply of fresh air must be regarded with suspicion unless it brings solid advantages in compensation. That substantial advantages do not attach to this form of treatment the authors feel sure. They therefore hope that this paper may have the effect of discouraging further application of the remedy in their country. But they venture to appeal also to Dr. Finsen, who has done so much for suffering humanity, to cease to lend the weight of his authority to support a method of treatment which, if it is inefficacious, must necessarily be inhumane.

EXPERIMENTAL TREATMENT OF CANCER WITH RADIUM.

KEITH in the *Medical Press and Circular* of August 10, 1904, refers to the physical or chemical properties of radium only in so far as they apply to practical medicine. The power possessed by this great metal of emitting rays which manifest different penetrative and therapeutic effects is the one property of all others which most strongly appeals to the physician. Whether or not these rays are identical with *x*-rays is a matter upon which much diversity of opinion at present exists. He is indebted to Dr. Reginald Morton for a copy of a paper sent him, in which he discusses this difficult and important question most clearly and concisely.

An approximate knowledge of the penetrative power of radium rays may be obtained by the ordinary *x*-ray screen in a dark room. With his own specimen of 5 milligrammes, all he could possibly procure last September of a trustworthy standard, this specimen when held half an inch behind a bar of metal 1¼ inches thick causes distinct fluorescence of the ordinary *x*-ray screen, and when held at a distance of three or four inches behind the screen, and the hand interposed between the radium and screen, the general contour of the hand becomes manifest, but to a much less extent than in the case of *x*-rays. These experiments are not only interesting, but easy to make.

Unfortunately the supply of radium is so limited that even in the out-patient departments of large skin clinics much difficulty is experienced in procuring suitable cases for this method of procedure. Hence, operators are precluded even now from dogmatizing on its therapeutic merits.

The method and duration of its application were additional difficulties which early workers had to encounter, and the difficulty in definitely fixing a period of application which will apply equally to all is well illustrated in the author's cases. Where different patients with like disease, similarly situated, had the same specimen of radium applied under like conditions to patches of lupus of equal size and depth, neither of which were previously treated, in the one case twenty applications of ten minutes' duration were sufficient to establish a cure, while in the other twenty applications of ten minutes' duration were insufficient to create any alteration, excepting slight redness and itching. It may be that personal susceptibility of patient, so important a factor in the Finsen light and *x*-ray methods, may also have to be reckoned with in the treatment by radium rays.

CASE I.—A male, aged thirty, unmarried, clerk, has been the subject of extensive lupus of the face for twenty years, during which time he has been applying nitrate of silver and other caustics weekly, and has had it scraped under an anesthetic seven times. He is at present receiving both the Finsen light and *x*-rays, and is steadily yielding to this course. About two years ago he developed a patch the size of a sixpenny piece over the right eyebrow, close to the orbital margin and inner angle of the orbit. The patch was circular in shape, with irregular edges, which were slightly raised above the surrounding skin and capped with a yellowish crust in the center. The position at once suggested treatment by radium because of the extreme difficulty of applying either the Finsen light or *x*-rays.

On December 16, 1903, having removed the crust, the author applied in close apposition with the patch five milligrammes of radium bromide in a vulcanite capsule, with a circular window of mica, for easy transmission of the radium rays.

From December 16, 1903, to February 10, 1904, he had in all twenty applications of ten minutes' duration. Nothing perceptible had occurred in the progress of the case until the end of the fifth week, when the edges of the patch became more prominent, slightly redder, and an itchy sensation was complained of, with a slight discharge from the patch for the first time. The further treatment was persisted in and five additional applications given, of the usual duration and at intervals as before.

On February 10, the date of last application, the edges of the patch were more swollen and redder, and although the itching had practically ceased the patient complained of stiffness of the muscles, which became more manifest on wrinkling the brow. The discharge referred to before meantime increased.

The treatment was now stopped, swelling and discharge subsided, and three weeks later the patch, although still red, had assumed the appearance of a healthy scar. No external applications of any kind were applied prior to, during, or since the treatment above described.

CASE II.—A girl aged sixteen was admitted to the Skin Hospital, December 21, 1903, suffering for about seven years from a patch of lupus, the size of a sixpenny piece, of a reddish color, with raised edges covered with branny scales. Patient suffered no pain; she sought treatment only because she thought it was beginning to spread and becoming more unsightly. On December 21, 1903, five milligrammes of radium bromide were applied in direct contact with the patch, there being no discharge from the sore in this as in the former case which could in any way diminish the radioactivity of the specimen employed. Between December 21, 1903, and March 18, 1904, sixty-one applications were given.

First month, five applications weekly of ten minutes' duration without manifesting any visible change, excepting a slight redness.

Second month, twenty applications of thirty minutes' duration were given, the redness of the margin becoming more pronounced, accompanied by itching but no discharge. February 13, duration of application was increased to forty-five minutes, of which fifteen such applications were given, with the result the edges of patch became swollen, with the sensation of pins and needles in part, and a discharge on pressure. Treatment was still continued, and six further applications were given of sixty minutes each, the last on March 18, when treatment was stopped. A week later the pain, swelling, and discharge had diminished. The base of ulcer was clean and healthy looking, but the edges somewhat raised.

No treatment or external applications of any kind were applied prior to, during, or since the treatment mentioned.

Keith believes that radium, to be of practical use in the cure of disease, or the alleviating of human suffering, must be forthcoming in much larger quantities, of a recognized standard of activity, and at a very much cheaper rate.

From his own experience the author prefers detailing what he has already achieved and how he achieved it, rather than expressing an opinion on its merits which might in any way circumscribe its sphere of application or prevent others from putting it to the test.

For diagnostic purposes it is very doubtful if radium can ever be of much use. With the *x*-rays we have much ground for hope in both lupus and rodent ulcer, and combined with Finsen light the results recorded are becoming more universal and more reassuring.

In his previous paper the author expressed the belief that the Finsen light for circumscribed superficial lupus had no equal; now, after eighteen months further experience, he is more convinced than ever of its efficiency.

A PLEA FOR ORAL HYGIENE.

In the *British Medical Journal* of August 27, 1904, GOADBY makes this plea. He reminds us that oral sepsis as a factor in disease has of late attracted some attention, but so far, owing perhaps to its very prevalence, the far-reaching and wide-spread effects of its ravages are by no means always attributed to their proper cause. The fact that as a rule the affection is a chronic one, that the symptoms of oral sepsis may simulate acute diseases of all kinds, that the frequently associated gastrointestinal symptoms are chronic and persistent with only occasional acute stages which are easily attributable to other secondary causes, that the secondary anemias associated with septic oral disease may be frequently masked by other probable causes, and from the fact that the very manifestations of the disease in the mouth may often exist with teeth entirely free from dental caries, it is small wonder that the main question becomes somewhat obscured.

Dental caries is only important in that decayed teeth are often the determining factor in the production of inflammation of the mucous membrane of the mouth. Such an inflammatory process, either originating from dental caries or following on some general affection, facilitates the symbiotic growth of pathogenic bacteria which may later gain access to the circulatory or other system, and in some cases actually produce death. Or the individual, through the constant ingestion of pus from the alveolar margins as well

as the living organisms and toxic bodies, slowly develops the signs of secondary anemia, or of gastrointestinal infection, or exhibits the symptoms of carcinoma of the stomach, or gradually drifts into a condition of neurasthenia, impaired nutrition, and falls an easy victim to some intercurrent disease. Such is no imaginary picture, as scores of such cases in various stages are to be seen at any dispensary or hospital out-patient department.

Among children we find impaired nutrition, and with it impaired growth; with this, again, badly developed maxillæ, and thus the vicious circle is complete. Among children chronic inflammation of the mouth should be regarded with the utmost suspicion as a mode of hibernation of infectious disease.

It is unnecessary for the present purpose to enter into a lengthy discussion of the minute pathology and bacteriology of mouth affections. It is, however, essential to briefly review the more important outline of some mouth pathology, as it is in the etiology of, and the prophylaxis of, certain of these conditions that the author hopes to stimulate our interest, and roughly divides the question for the present purpose into: (1) Affections of the teeth themselves—dental caries. (2) Affections of the soft tissues of the mouth —gingivitis, stomatitis, etc.

Dental caries is that destruction of the teeth which is brought about by the solution of their lime salts through the action of acids produced from carbohydrates by the activity of bacteria, and followed by liquefaction of the exposed and softened matrix by the proteolytic enzymes of other bacteria. The first point of attack is invariably some part sheltered from the mechanical cleansing, either of the act of mastication or the rubbing effect of the tongue. The point of attack is usually a small, mucilaginous patch of adhering bacteria, under which solution of the lime salts progresses, and the surface of the tooth is gradually eroded. In neither enamel nor dentine does any physiological or inflammatory reaction appear to take place, the whole process of dental caries being comparable to the ordinary destruction of wood by rotting.

In its ultimate pathology dental caries is therefore so simple a process that many of the etiological factors more closely associated as determining causes may be easily observed. It is apparent that they will include any cause or series of causes which allow or facilitate the retention of foodstuffs of a carbohydrate nature in or about the teeth, the attachment of bacterial plaques to the surfaces of the teeth, irregularities of surface, softened and smooth foodstuffs without an accompanying proportion of hard and fibrous material. It follows, moreover, as a corollary that these various causes commence to operate as soon as a child cuts its first milkteeth.

Tomes and Black have made a number of observations on the chemical constitution of different teeth, and they are both of opinion that there is little or no evidence that the incidence of dental caries is in any way related to the proportions or amount of the lime salts present in such teeth.

Therefore, the various etiological factors may be scheduled as follows:

I.

1. Crowding of the teeth from whatever cause.
2. Rachitic conditions, associated with nasal obstructions, imperfect development of the maxillary bones, and other developmental conditions.
3. Abnormalities of the size of the tongue.
4. Deformities and irregularities of surface of the teeth themselves.

II.

1. Soft foodstuffs, mainly of carbohydrate nature.
2. Absence of hard and fibrous material, and therefore loss of mechanical effect.

III.

1. Physiological alterations in the oral secretions, composition of saliva, etc.
2. Affections of the soft tissues of the mouth, such as gingivitis, stomatitis, and other similar affections, may or may not be associated with carious teeth and dentoalveolar abscesses. Quite commonly inflammatory sequelæ may be found in the mouth after the acute fevers, measles, diphtheria, influenza, and many other affections which are associated with inflammatory conditions of the pharynx. It is quite common to find a chronic suppuration persisting along the margins of

the gums after one or other of the above cited diseases; and such a chronic condition induces a similar chronic inflammation of the various cavities related to the mouth, over and beyond gastrointestinal and other affections which are commonly associated with oral sepsis.

THE RESPIRATORY AND CARDIAC REFLEX INDUCED BY PERIPHERAL IMPRESSIONS ON THE PUDIC NERVE DURING ANESTHESIA.

WILSON in the *Lancet* of August 20, 1904, discusses the subject named in the title of this article.

In his "Address in Surgery" to the British Medical Association Sir William Macewen referred to the familiar spasm of the glottis produced during anesthesia by forcible dilatation of the sphincter ani or irritation of the parts supplied by the pudic nerve. In these circumstances this spasm is part, often the only surviving part, of an expulsive effort, and has been recognized for some time. The causes which give rise to it are of a kind which in normal circumstances tend to initiate expulsive efforts. Chief of these are any sudden increase in the intra-abdominal pressure—*e.g.*, distention of the bladder or rectum, the reduction of large herniæ of old standing, the introduction of the hand or large sponges into the abdominal cavity, dilatation of the sphincter ani and occasionally of the os uteri, etc. It may also be produced by any peripheral irritation, especially in young subjects. Its occurrence in the course of surgical interference comes about in the following manner:

Expulsive efforts are performed through the agency of the respiratory and other nerve centers in response to stimuli reaching them from certain organs and conveyed by various nerves, chief of which are the branches of the pudic nerve. Irritation of one of these nerves produces an impression on the center more or less equivalent to its normal stimulus and evokes a reflex response, just as irritation of the optic nerve gives the sensation of a flash of light. During narcosis normal stimuli conveyed to the nerve centers by a distended bladder or rectum, or abnormal stimulation by forcible dilatation of the sphincter ani or irritation of the pudic nerve, result in an expulsive effort. The completeness of this effort depends upon the degree of narcosis—that is, upon the number of unparalyzed nerve centers that are left to carry out the act. This becomes evident when the constitution of the nervous system and its mode of reaction toward anesthetics are considered.

The nervous system as a whole is composed of numerous nerve centers or nerve mechanisms which appear and reach their maturity at different periods in the evolution of the race and growth of the individual. The highest and most complex of these functions are latest developed and least able to resist disease or depressing conditions. This also holds good as regards their response to the action of chloroform and other anesthetics. The continued inhalation of chloroform induces a progressive paralysis of the various nerve centers, beginning with the highest, most complex, and latest acquired functions, and ending with paralysis of the fundamental functions of respiration and circulation. What is true of the nervous system as a whole is equally true of its more complicated reflex mechanisms, which react to anesthetics in a similar manner. Each reflex mechanism consists of a fundamental and accessory elements, which latter by their coöperation assist in the performance of the reflex, without being absolutely essential to it. Thus in every such reflex there are associated several nerve centers the coordinate action of which is necessary for the complete development of the reflex. Under the influence of deepening anesthesia these associated accessory centers are the first to be paralyzed, but the essential factor in the reflex resists longest and is the last to disappear.

An expulsive effort is a mixed reflex intimately associated with respiration, but requiring for its most effectual performance the assistance of various nerve centers. Intrinsically it is an expiration, more or less forcible, necessarily associated with closure of the glottis. This sudden closure or spasm of the glottis is an essential or fundamental portion of the reflex and constitutes the feature which differentiates it from an ordinary expiration. This being so, the act of closing the glottis, as a fundamental factor in the reflex, should longest resist the

anesthetic, and this proves to be the case. Under the influence of the anesthetic the associated nerve centers gradually become paralyzed, the response to stimuli becoming less and less complete as fewer nerve centers participate in the action. Ultimately when the narcosis has become profound the essential fundamental portion of the reflex, the closure of the glottis, alone survives. Finally this, too, may be abolished, and then the only response to stimulation is evidenced by an alteration in the respirations through the effect of the stimulus on the unparalyzed respiratory center. Under varying degrees of narcosis every variety of expulsive effort may be seen, from a complete effort, accompanied with closure of the lips, alteration of the facial expression, and "bearing down" in slight anesthesia, to the faintest laryngeal stertor or mere catch in the breath in deep narcosis. The spasm cannot be safely abolished because it arises from the respiratory center, which strongly resists the action of the anesthetics.

When spasm of the glottis arises as the consequence of peripheral irritation its mechanism would appear to be as follows: Sudden acute pain in the conscious subject is met by an involuntary deep inspiration, followed by closure of the glottis and fixation of the chest preparatory to an exclamation or other effort. What occurs in the conscious subject tends equally to occur in the unconscious or semiconscious individual, but a number of centers being paralyzed the action is not complete or properly coördinated, hence the stertor. As regards the alteration in the pulse there are two factors. The procedures inducing the above abortive expulsive efforts are all painful, and as such cause a certain amount of shock and so may influence the circulation. Further, the circulation is intimately associated with, and in a measure dependent upon, the respiratory movements. Any modification of these, especially such as increase the intrathoracic pressure, as do expulsive efforts, of necessity alter the pulse, and will account for the majority of the cases.

It is interesting to note that forcible dilatation of the sphincter ani has been suggested as a remedy in chloroform accidents, the object being to stimulate respiration. Of course, in the conscious subject an expulsive effort is preceded by a deep inspiration, but in a state of narcosis sufficiently profound to induce respiratory paralysis this would not take place. It is questionable if at any stage of narcosis inspiration could be elicited by dilatation of the sphincter ani.

COPPER IN PRESERVED PEAS AND BEANS.

Fines of £2 with £2 2s. costs and £1 with 2s. costs were inflicted by Mr. Marsham at Bow-street Police Court upon a wholesale grocer for selling preserved peas which contained 3.402 grains of sulphite of copper per pound, and beans which contained 4.067 grains per pound. Medical evidence was given by Mr. A. D. Cowburn, acting medical officer for Holburn, who explained the cumulative effect of repeated doses of sulphate of copper, and pointed out that though it might be administered mechanically the maximum dose in such a case would be considerably less than that contained in a pound of peas or beans as sold by the defendant. When only a small amount of copper was used it entered into combination with the chlorophyll, forming phyllocyanate of copper. There was no direct evidence that phyllocyanate of copper in minute quantities was injurious to health, although dogs fed on this substance became paralyzed, which paralysis ultimately caused death. When copper was used in such large quantities, however, as those stated in the analyst's report the copper entered into combination with the pith or substance of the pea or bean, forming leguminate of copper. He had ascertained from the analyst that leguminate of copper was present in both the articles in respect of which proceedings had been taken. There was a difference of opinion as to whether leguminate of copper was or was not acted upon by the gastric and pancreatic juices. When people, as they frequently did, used butter in cooking peas preserved with copper, complex organic compounds, one of which was oleate of copper, were formed, in which case a much larger quantity of copper was absorbed into the body. That had been proved by experiments carried

out for the purposes of the Departmental Committee on Food Preservatives.

The defense raised a point of law on the form of the certificate, while otherwise it was to the effect that the defendant had for many years sold similar goods to those on account of which he was prosecuted. The tin of beans had on it a label intimating that it contained sulphate of copper, and the tin of peas had, it was stated, borne a similar inscription, which had fallen off.

Questions were put to Mr. Cowburn in cross-examination with a view of showing that sulphate of copper, being used medicinally, was therefore harmless, or even beneficial, in vegetables. It is to be hoped that when this last point is raised, where chemical substances have been introduced into foods as coloring matter or as preservatives, magistrates will remember that when poisonous drugs are employed as medicine they are prescribed for particular purposes by qualified medical practitioners, and that the prescriptions are then made up by competent and responsible druggists. The addition of such drugs to foodstuffs in order to attract customers is upon a different footing, if only because there is no proof that trustworthy steps have been taken to procure the proper proportion of the dangerous substance, and no more, appearing in a given quantity of the article sold.—*Lancet,* Aug. 20, 1904.

QUINQUAUD'S SIGN OF ALCOHOLISM.

A new sign of chronic alcoholism has been lately brought to notice from several quarters, and as it appears to be well authenticated medical men may be glad to avail themselves of such information as it affords. The sign was first discovered by Quinquaud, but was not published to the world till seven years after his death. Since then Maridort and Fürbringer have both directed attention to it. The sign is elicited by making the patient place the tips of his fingers, well spread out, perpendicularly against those of the examiner, when, if the patient is of alcoholic habits, the examiner feels a number of slight shocks as if the phalanges of the patient were rapidly pressed against each other and against the palm of the examiner. The sensation experienced by the examiners is said to be similar to that of crepitus such as is felt in arthritis deformans, but it has also certain indescribable peculiarities of its own. This crepitus can be heard by the stethoscope and sounds like friction, though in autopsies on patients who have exhibited it no undue dryness or roughness of the articular ends of the bones has been found. Nor has it any relationship with alcoholic tremor, for whereas Fürbringer found marked tremor in only 7 per cent of drinkers, he found Quinquaud's sign present in nearly 92 per cent. The pathology of the condition that produces this creaking is very obscure, and after discussing it Fürbringer concludes that it must be a neurosis, but this result is arrived at more by excluding organic causes than by any positive evidence of nervous derangement. The sign is not likely to be of much practical value, but it is certainly an interesting clinical phenomenon.—*Medical Press and Circular,* Aug. 24, 1904.

CHRONIC RENAL DISEASE.

Dr. HALE WHITE, in opening a discussion on the above subject (*Medical Press and Circular,* Aug. 3, 1904), said that the exigencies of time compelled him to limit his remarks to the treatment of the disease usually known as chronic Bright's disease. Many physicians have based their treatment largely upon the albuminuria, but this is wrong, for probably not much harm follows the mere loss of albumin in the urine; the amount so lost is always small and could be easily compensated for by a little more in the food, and further, in many diseases, such as cystitis, large amounts of albumin are lost in the urine, but no one thinks of directing the treatment directly against the albuminuria. The value of the albumin in the urine is that it enables us to diagnose the disease, and to estimate the progress it is making. It was pointed out that very often toward the end of a case, when the patient is at his worst, the amount of the albumin in the urine is less.

Passing to the cardiovascular system, two conditions are met with. Some patients have a hypertrophied heart and high tension pulse, others are suffering from

a weak, feeble heart. The first group must keep down their blood-pressure, for they run considerable risk of fatal hemorrhage; physical exercise should be gentle, the bowels should be loosely opened once a day to avoid strain at stool, meals should be small, alcohol should not be taken, and very little meat or soup or meat essences on account of the extractives in them. There should be no excessive drinking of fluids, and digitalis and other drugs which raise the blood-pressure should not be given. Sometimes the weak, feeble heart met with in chronic Bright's disease is brought about by the fact that the patient has been starved; under the impression that most articles of food irritate the kidneys, he has been kept on nothing but milk. It is surprising how such patients are benefited by giving them a little meat, and sometimes a little alcohol helps them. Often patients with Bright's disease are not allowed enough exercise, with the result that they become fat, and this is very bad for them because the already enlarged heart is not capable of conveying the blood properly to the extra amount of fat tissue, hence the organ dilates.

Unless the heart has dilated, severe edema is not a common symptom of chronic Bright's disease, although it is frequently met with in chronic tubal nephritis. It is best treated by posture. If it is in the legs they should be raised; if in the lungs, the patient should be turned from side to side. Diaphoretics do not often help much, but on the other hand the edema subsides best when but little fluid is drunk. Still, the most efficient way to get rid of edema is to puncture the legs with needles. The amount of fluid that will drain off is very great, and this relieves the edema of other parts. Great care must be taken to see that the punctures in the legs are kept sweet, for the tissues of patients with Bright's disease are particularly liable to septic inflammation.

Many methods of treatment have been directed to avoiding substances which are supposed to be harmful because they irritate the kidneys. Certain drugs undoubtedly do this: for example, carbolic acid, cantharides, and turpentine. Other drugs are excreted with difficulty, such as mercury, lead, and digitalis. There is much difference of opinion about morphine. It certainly often benefits the convulsions of uremia, but inasmuch as the subjects of chronic Bright's disease are very easily poisoned by it, it should be very rarely used. We know really very little as to whether any articles of diet irritate the kidneys. Excessive drinking of alcohol is bad, but only three to five per cent of alcohol, when only a moderate quantity is taken, is excreted by the kidneys. Therefore a little alcohol does not irritate the kidneys at all. The guide in giving alcohol in Bright's disease is the pulse; if the tension is high it must not be given, if the tension is low it is often beneficial. As we are very ignorant as to the kind of food which irritates the kidneys, probably most patients with chronic Bright's disease are best if they take ordinary plain, simple food in such quantity that their weight keeps about normal. There is no evidence that one form of meat is better than another, or that chicken and fish are better than beef and mutton, and most of the statements with regard to the dieting of patients with chronic Bright's disease are based upon entirely insufficient evidence. Often the patients are overdieted, their food is unduly restricted, and they feel very much better when they are allowed more latitude. This is especially true of chronic tubal nephritis. Tea, coffee, and tobacco should all be used with great moderation by sufferers from chronic nephritis, as we have already seen how important it is to keep the blood tension normal, and any of these three will render the pulse irregular, rapid, and of low tension. As a rule, too, much water-drinking is bad, for if much is taken edema will not subside, and excessive water-drinking increases nitrogenous metabolism, and also a large amount of water raises the blood-pressure.

There can be little doubt that uremia is a form of poisoning. What the poison is we do not know. There is no evidence that it is derived from the food, for the onset of uremia has not been shown to be associated with any particular article of diet, and large amounts of food in healthy persons do not lead to uremia. Dr. Hale White quoted a case which was observed by himself and Dr. Spriggs, in which 5000 kilocalorics of food were taken a day for fifty-five days; at least 120

grammes of nitrogen were retained, but the patient had not uremia. Further, there is no diminution in the output of nitrogen during uremia. As there is no evidence that uremia is connected with the food, it is supposed that the poison is produced within the body. As we know of no antidote to it nor any way of stopping its formation, all we can do is to render the excretory channels of the body active. Therefore the bowels should be kept open, the patient should be made to sweat, and any diarrhea and vomiting should not be checked. Often benefit follows transfusion, probably because some of the poison is washed out; bleeding, too, is often beneficial. As this treatment is correct for uremia, it is well for a patient with chronic Bright's disease always to keep the bowels well open, and to have a hot bath occasionally, so as if possible to ward off uremia. Inasmuch as in Egypt the heat is great and the humidity of the air is low, it is an ideal climate for sufferers from chronic Bright's disease, for they perspire quickly and the perspiration rapidly evaporates.

TREATMENT OF ASTHMA.

SAWYER writes on this topic in the *Charlotte Medical Journal* for August, 1904. He believes the treatment of asthma must necessarily be divided into the treatment of the acute attack and the treatment during the interval. When first called to see a patient with asthma he generally has an acute paroxysm, and immediate relief is necessary. To accomplish this the inhalation of chloroform, ether, or a nitrite of amyl pearl broken up in a handkerchief, or of fifteen to thirty drops of iodide of ethyl on cotton, is frequently all that is needed. Sometimes a hypodermic of morphine is indicated, or large doses of chloral or potassium bromide. Great care is necessary in exhibiting chloroform, strontium, belladonna, and depressing narcotics, as they must not be used when the patient has a weak heart, and especially where the attack is due to a cardiac affection, as they are here dangerous. Morphine must be used carefully in order to prevent the forming of the morphine habit. Codeine may be used when morphine is indicated, but is debarred by reason of its causing nausea, vomiting, etc. Atropine does good at times, and may be combined with morphine. Strong, hot stimulants or a dose of spirits of chloroform in hot whiskey, or Hoffmann's anodyne, will sometimes induce relaxation. Cocaine applied locally to the nose in cases due to nasal abnormalities frequently gives prompt relief. The use of adrenalin hypodermically and by local application is oftentimes of great service. The author has found it to be of real advantage in numerous cases, especially when there is a congested nasal mucosa, and in "hay-asthma." Inhalation of carbonic acid gas has been useful in many cases. It is supposed to act by abolishing the reflex sensibility of the larynx, and has cut short the paroxysm when given during the attack. The sedative antispasmodics, such as belladonna, henbane, stramonium, and lobelia, may be given in solution or used in the form of cigarettes. Nitre paper made with a strong solution of nitrate of potash is very serviceable. Many excellent cigarettes are manufactured for asthma, and they do good at times. Most of them contain some plant of the order Solanaceæ, with nitrate or chlorate of potash. Filling the sleeping-room at bedtime with the fumes from nitre paper or some of the asthma cigarettes or powders will sometimes ward off an impending nocturnal attack. In some patients tobacco acts as well as other forms of cigarettes, especially with those who are not accustomed to using it. Paraldehyde, thirty grains hourly, is recommended by Mackie. Citrate of caffeine is good in bronchial asthma, and in bronchitis associated with spasm of the bronchial tube. Free ventilation supplies fresh air and does good. Inhalations of oxygen are also efficacious at times. Strong coffee is worth trying, as is also nitroglycerin. When the stomach is overloaded after a hearty supper, the use of apomorphine as an emetic and expectorant will bring prompt relief, but this is contraindicated in the patient who is greatly debilitated, or who has a weak heart. Wine of ipecac, lobelia, or antimony may also do good.

The application of cold over the pneumogastrics in the neck, or to the upper spinal regions, is sometimes successful in relieving the attack. Electricity (galvanization and faradization of the neck)

will likewise give relief. Nitrite of sodium may also be used successfully. Sée advocates the use of inhalations of pyridin. Duenas recommends antipyrin, fifteen grains every three hours, as being especially effective in anemic cases, but it soon loses its power and does harm sometimes by increasing the severity of the subsequent attack, especially in cases associated with bronchitis. Penzoldt employs the tincture of quebracho, a tablespoonful, pure or in emulsion.

Mustard plasters to the chest and calves and hot applications are sometimes useful, as is also the putting of the hands and feet in hot water, or the inhalation of the vapor of turpentine or ammonia. The use of the pneumatic cabinet may be beneficial. The author has in several instances cut short an attack by the use of the inhalation of medicated vapors from a compressed air apparatus.

THE TREATMENT OF RINGWORM OF THE SCALP.

The *Birmingham Medical Review* for July, 1904, contains this advice by HEATH as to the treatment of this disease:

Having removed as many as possible of the diseased hairs and scales and taken precautions against reinfection from the lining of caps, brushes, etc., the actual treatment of the scalp may be begun.

For a very mild, early case, a few but thorough paintings with strong iodine may be sufficient to kill and bring away the greater part of the fungus, and sulphur ointment may be used to complete the cure. To get good results with this treatment, it is necessary to completely remove the horny cuticle which is thrown off by the scalp as a result of each application of the iodine before painting it again, as greater penetration of the drug is thus insured. This can be done by a blunt-pointed pair of dressing forceps, and all loose hairs and stumps may be removed at the same time. For older cases tincture of iodine may again be used, but it must be well rubbed into the scalp and the treatment repeated again and again until no diseased hairs can be found. As tincture of iodine so rapidly dries on the scalp, some add a small quantity of glycerin (3j to ℥j) to prevent this.

It is well known that the fungi of ringworm are aerobic in their growth, and Vidal's treatment, based on this fact, consists in rubbing the head with essence of turpentine to thoroughly dry and clean it, and painting the scaly patches with tincture of iodine. Vaselin is then smeared over the whole surface, and a gutta-percha cap is firmly bandaged on to the scalp. This dressing is renewed twice in the twenty-four hours, the scalp being thoroughly washed with soap and water and dried with great care before each application.

Another method of treatment consists in depriving the fungi of water, which is also necessary for their growth. For this purpose, alcohol, ether, and chloroform may be used to dehydrate the tissues and dissolve the fat, and salicylic acid can be added to them for its destructive action on the fungi. Malcolm Morris says that by the use of salicylic acid in this way many early cases may be rapidly cured. provided no fatty substances are allowed to come in contact with the scalp. It is, however, argued by others that the ringworm fungi can get all the water necessary for their growth from the tissues.

For the treatment of more prolonged and chronic cases some of the following methods of treatment may be employed. Most of these methods aim at setting up more or less dermatitis, which, whilst loosening the hairs, increases the resistance of the tissues to the parasites.

Unna and Duhring speak highly of chrysarobin for this purpose. One drachm of this drug to the ounce of vaselin is the strength ordinarily employed, and the ointment is well rubbed into the scalp.

Coster's paste, which consists of iodine (in crystals) 3ij, oil of wood tar or creosote 3vj, has long been employed with great success in ringworm, particularly in England.

The stronger mercurial and sulphur ointments are often very useful as parasiticides. Some such combination as

> Ung. hydrarg. oxidi rub., 3j,
> Ung. sulphuris, 3ij,
> Vaselini, 3j,

will be found very useful alone, or oil of cade 3ss to 3ij, or some other of the tarry oils, may be added, as recommended by Bulkley and others.

Oleate of copper, in the strength of 3j

to 3iv to the ounce, will produce sometimes readily enough a pustular condition, following which the hairs will be found to be loosened.

Carbolic acid may be used in the strength of 10 to 30 minims to the ounce of vaselin, and mercurials or other parasiticides may be added to this ointment if found necessary.

Where expense is no consideration, as in private practice, lanolin, or lanolin and olive oil, should be used instead of vaselin as the basis of these ointments, as it gives them a greater penetrative action on the scalp. For very chronic cases of ringworm, and especially for such forms as the "black dot" ringworm, which are very resistant to treatment, Aldersmith strongly advises croton oil in children over seven years of age. This is applied to the individual hair follicles over a very small area at first, and poultices are firmly applied over the patches under treatment. After a time a boggy artificial kerion is produced, and the hairs, being loosened in their follicles, can be withdrawn very easily. The hair will usually grow again in a healthy condition, but there is some risk that a permanent baldness may result, and therefore the treatment should at first be tried over only small areas.

As the result of nearly ten years' hospital experience in Birmingham, where ringworm of the scalp is almost constantly due to the microscopic variety of fungus, the author has had far better results from the repeated use of iodine than from any other remedy. The scales and loose hairs being removed before each painting, tincture of iodine is rubbed firmly into diseased patches with a brush. Care is taken to stop the treatment for twenty-four hours or more if much soreness results, but it is resumed again when this passes off. Sulphur ointment is afterward rubbed in by the patient at home twice daily.

GASTROINTESTINAL TOXEMIA.

In the *Archives of Pediatrics* for September, 1904, RACHFORD writes on the treatment of this condition. He believes that a dose of castor oil, followed by a diet carefully regulated to suit the patient's digestive capacity, active life in the open air, a diastase and iron preparation after meals, are needful. Under this treatment the child's general health gradually improves. He gains slowly in strength and weight. His general nervous irritability, which is greatly improved from the beginning of the treatment, gradually disappears. He never has any of the peculiar attacks after the treatment is begun. Three months later the child may be discharged well.

Intestinal toxemia, acute and chronic, is not an uncommon complication of other diseases, such as typhoid fever, malaria, tuberculosis, and chronic diseases of the gastrointestinal canal.

As a complication this condition is probably met with more commonly in the convalescence from typhoid fever than in any other disease. The physician's unjustifiable fear of cathartics in this disease is ofttimes prolonged into the period of convalescence, and as a result fecal accumulations occur, which result in an intestinal toxemia which prolongs the period of convalescence many weeks.

The urine furnishes valuable evidence of the existence of intestinal toxemia, and ofttimes our attention is called to this condition by the presence of an excess of indican and the ethereal sulphates in the urine. The presence of these substances in the urine is sufficient reason to suspect a hyperfermentation of albuminous foodstuffs in the intestinal canal, and also usually means the retardation of these foodstuffs in their passage through the canal, but the absence of indican does not rule out intestinal toxemia, since we may have severe forms of intestinal toxemia in which indol is not an etiological factor.

The etiological importance of the vegetable organism in producing intestinal toxemia must not cause us to altogether overlook the possible rôle which animal parasites may play in these pathological processes. In the present state of our knowledge, however, it is not possible for us to make any positive statements as to the exact rôle which intestinal worms play in producing gastrointestinal toxemia. Lynch, in Grancher and Comby's "Maladies de l'Enfance," says that intestinal worms may be responsible for a large group of toxic symptoms, such as urticaria, ringing in the ears, syncope, vertigo, palpitation of the heart, insomnia, mental anxiety, hypochondria, general

nervous irritability, fever, delirium, and convulsions.

While this group of severe toxic symptoms may be associated with intestinal worms, it does not necessarily follow that they are produced by the absorption of poisons which have been excreted by them. Lynch himself points out the possibility of these symptoms being produced in part at least by the secondary fermentations, which the presence of these parasites excites in the intestinal canal, and notes also the possibility of severe symptoms being produced, reflexly and mechanically, by their action.

Leukart observed that the ascaris lumbricoides excreted a poison capable of producing toxic symptoms. Huber, von Linstow, Chanson, and Raillet state that this same worm contains an irritating substance capable of producing a toxic effect on the human organism, and a number of other French authors state that this worm excretes an irritating and convulsive substance. Cao, on the other hand, after carefully investigating the subject, concludes that the evidence at the present time does not justify us in attributing toxic symptoms to the actions of poisons excreted by intestinal worms.

While there is considerable difference of opinion as to the etiological relationship whch exists between animal parasites and intestinal toxins, it seems to be rather generally conceded that these parasites may either directly or indirectly produce intestinal intoxication.

AN ANALYSIS OF ONE HUNDRED AND EIGHTEEN CASES OF LOBAR PNEUMONIA IN INFANCY.

MORSE contributes to the *Archives of Pediatrics* for September, 1904, a report of this character. The treatment employed was as follows:

No treatment beyond nursing and the regulation of diet was given in thirty, or 25 per cent of the cases. Antipneumococcic serum was used in ten cases with no effect whatever on the course of the disease. Creosotal was used in six cases, also with no effect. Brandy was given in seventy, or 60 per cent of the cases, and strychnine in thirty, or 25 per cent of the cases. Aromatic spirits of ammonia was given in twelve cases, digitalis and caffeine each in one case. Phenacetine, in doses of ¾ grain to 2 grains, was used in eight cases, and lactophenin in 2-grain doses in one case. The temperature was, as a rule, but little affected by these drugs. They apparently did no harm.

Cold in various forms was used in twenty-eight cases, or 24 per cent. Tub baths, at temperatures varying from 80° to 100° F., were used in eight cases. They were, as a rule, badly borne, and in two cases caused serious collapse; they were also, as a rule, not effectual. Sponge baths at from 80° to 90° F., or of equal parts of alcohol and water at 100° F., were used in five cases. They were usually resisted and fatigued the infants without giving any good results. Fan baths, at a temperature of from 100° to 110° F., were used in fourteen cases. They were badly borne in one case, were disliked by another, and caused excitement in a third. Several of the infants seemed to enjoy them, and, with the exceptions noted, they were always well borne. In most cases they caused drops in the temperature of three or even more degrees. The cold pack was used in but one case, in which it gave very good results.

Cotton jackets and poultices were never used, and no applications were made to the chest.

INSUFFICIENT MOTILITY OF THE STOMACH AND ITS TREATMENT.

FULTON gives the following advice as to this subject in the *New York Medical Journal* of September 17, 1904. He thinks the indications for treatment are plain—the diagnosis of insufficiency due to atony or to obstruction having been determined.

In both, stagnation of the stomach contents is to be prevented.

In both, a diet must be given that spares the motor powers of the stomach. Aside from these common indications, different procedures must obtain in the atonic and in the obstructive forms.

In the atonic, to improve the muscle tone and motor powers of the stomach is the indication.

In obstruction, to do this would be worse than useless and an irrational procedure, as it would add to the difficulties. In this form the one indication is to remove the obstruction as early as a diag-

nosis permits. Anything short of this is wasted effort.

1. In selecting a diet for patients with reduced motor powers, we make it a working basis that the more feeble the motility the more liquid the diet we prescribe; especially is this true when we have a case with obstruction of the pylorus. Milk preparations, soft eggs, gruels, soups, and the various articles of concentrated food are to be chosen. A common error is to allow the patient too much liquid food at a feeding. Liquids are both heavy and bulky, and if taken in this way add to the distention and discomfort. The feedings should be small and frequent. In cases of but slight motor insufficiency, if an analysis reveals a fairly normal gastric juice, solid foods, meats, purée of vegetables, toasts, etc., may be allowed. In these cases the writer has often had the best results by giving the patient but two meals a day. But in weak, emaciated patients, the stomach is usually unable to dispose of enough nourishment for the day on the two-meal plan; such patients do better on five or six smaller meals.

2. *Medicinal Treatment.*—Not much in a curative way can be done by medicinal treatment, but much, often, in relieving the distress of the patient. In atonic insufficiency, strychnine, 1/24 of a grain three times a day, should be tried. The author has often had good results with a pill containing from half a grain to a grain of creosote, with one grain each of pulverized rhubarb and soap, in improving the peristalsis and fermentation after meals. The same may be said of salicylic acid or the salicylate of bismuth. Medicinal measures are also of value in correcting symptoms arising from abnormities of the gastric juice. In all cases of this sort careful analysis of the state of the secretions is to be made, and the medicinal and dietetic efforts must be governed thereby. In the absence of HCl, the dilute HCl given, freely diluted, in 20- or 30-drop doses, through a glass tube, after meals, and repeated two or three times, is of decided value in some cases. While it is probably impossible fully to satisfy conditions when the HCl is entirely absent, observers, with very few exceptions, believe it to be one of the best stomachics and stimulants to pancreatic activity that we have. Where excessive acidity exists, teaspoonful doses of burnt magnesia and sodium bicarbonate one or two hours after eating, and repeated if need be, relieve the cardialgia.

3. Of the mechanical measures, well fitted abdominal bandages very often give great relief.

Lavage is indispensable in all cases in which there is abnormal retention of food. After food has lain in the stomach several hours longer than normal, and becomes thereby a decomposing, fermenting mass, its further retention and passage through the twenty feet of intestines can result only in further harm to the patient, by the absorption of toxins and the disturbances of intestinal digestion.

In those patients in whom food is found in the stomach before eating in the morning, the author makes it a rule to wash the stomach daily night or morning.

In cases of less severity, lavage once or twice a week may suffice. The bitter tonics or antifermentatives can often be added to the wash water with advantage.

A LECTURE ON DIGITALIS.

DR. BRADFORD, in the *Clinical Journal* of July 27, 1904, says that a very few words are needful about the effects of digitalis on the tonic activity of the heart. He impresses upon us that the heart during life is never relaxed; that at the end of diastole it is still contracted to a certain extent, and that this degree of contraction of the heart is most important, inasmuch as it determines the amount of blood which shall enter the heart during diastole. If too much blood comes into the heart during diastole, of course the heart will not only get overdistended during diastole, it will be unable to empty itself during systole, and that is exactly what happens in heart disease, where, from a variety of causes, the diastolic mechanism is interfered with and the heart becomes overdistended in diastole. In such a case we get stagnation, and the circulation goes wrong. So in thinking about disturbances of circulation we must not concentrate our attention on the systolic period; we must bear in mind that during diastole the degree of tonic contraction of the heart wall is a most important factor, and that if for any reason this goes wrong, and the heart becomes dilated, the circu-

lation immediately goes wrong, and the most disastrous results occur. The great therapeutic value of digitalis is not merely that it slows the heart (that is a very convenient method of determining whether digitalis is acting or not, because we have only to count the pulse); the great value is that it increases the tonic contraction of the heart and diminishes the size of the ventricular chambers, and in that way regulates the inflow of blood during diastole, and it therefore determines the quantity of blood which shall leave the heart in the next succeeding systole.

So putting the things in the order of their importance, the most important action of digitalis, and its most characteristic action, lies in increasing the tonic contraction of the heart, that a very important action is a constriction of the blood-vessels, and that in addition it has an important action in slowing of the rhythm and increasing the force of the beat. That is the order in which the author puts its effects.

Finally it should be remembered that digitalis is not a substance which will produce slowing of a quick pulse always; it depends entirely on what is the cause of the acceleration. Digitalis has no influence, practically, in slowing a pulse of febrile disease, and it has very little influence in slowing a pulse quickened by nervous excitement; but it has a very profound influence in slowing a pulse which is quickened from disease of the muscular mechanism of the heart.

TREATMENT OF CHRONIC DYSPNEA.

In the *Birmingham Medical Review* for August, 1904, FOXWELL writes on this subject. He says it is very common to see patients who complain of this symptom and nothing else. The causes of this condition as seen in the consulting-room are, broadly, five. They may be placed as follows in order of frequency:

1. Disordered metabolism.
2. Vascular degeneration.
3. Renal cirrhosis.
4. Cardiac.
5. Pulmonary.

It is evident from the above order of procedure that diet must play a very important, often the most important, part in the treatment; in fact, diet alone will not seldom suffice to effect a cure. But cure by diet takes time to show itself, and we must appease our patient's haste to be well by the alleviation of drugs. The author usually gives some such pill as this:

> Pulv. rhei, gr. j to ij;
> Hydrarg. subchlor., gr. 1/20 to 1/10;
> Ext. hyoscyami, gr. j to ij.
>
> One once or twice a day.

The patient is often run down, and then strychnine may be added to it. It may be wise to give a dose of some aperient water before breakfast every other morning whether the bowels be well open or not. The author usually speaks of the pill as a tonic liver pill, as otherwise it will be looked on as a simple aperient and not be taken unless the bowels tend to constipation; the result will then not be good. and one's skill naturally valued at a low price.

If there be much gouty tendency, the capsules of colchicine and oil of wintergreen are a useful preparation. One should be given six times a day for a week, and afterward three a day for three weeks more.

It is often desirable to bring about a mild diuresis: this can be done by drugs. but is usually better effected by some medicinal water. The author finds Evian water as useful as any; it contains salts fairly identical in nature and amount with those in the blood; it is in no way depressing, and is very palatable; one to two pints should be taken daily in divided doses on an empty stomach.

Patients who are in feeble health should be made to rest both before and after meals, with a rest of not less than an hour after lunch. Such resting is preferably taken in the open air, and nowadays it is not difficult to get our patients to agree with us in this. Long-continued or severe exercise is in all cases to be eschewed, but it is most important to insist that four short periods—half to one hour—of gentle outdoor exertions should be taken daily.

As to diet, the two great things are to insist upon no alcohol and very little animal food. The meat should preferably be taken at the midday meal; but if the patient is accustomed to dine in the evening, it is as well to allow him to continue to do so, forbidding soups made with

animal stock, and allowing only fish or meat. Concentrated vegetables—*e.g.*, peas, beans, etc.—should not be obtained during a long period of the year. For breakfast and lunch, milk foods with bread and butter should be the staple diet. Early to bed—not later than ten—is another essential condition; hence the evening meal should be at 6.30 or 7.

Should the patient be prone to wake up with nocturnal dyspnea, or should the breathing be most difficult in the evening, then midday dinner must be insisted on, and the evening meal be a light tea not later than six. These cases of metabolic asthma are generally due to increased arterial tension, or, at any rate, are accompanied by this; hence trinitrin or some similar drug is of much temporary service.

The second and third causes—vascular degeneration and renal cirrhosis—are intimately connected with the one just considered; perhaps most often the three coexist, but the author has placed disordered metabolism first, as the dyspnea of 2 and 3 is due to the inducement by them of 1, and if we can correct 1, the dyspnea usually goes. But not always; vascular degeneration itself is a most potent force in the causation of dyspnea owing to the constant excessive labor it throws upon the heart. The hearts of vascular degeneration have but little strength to spare; quick exertion easily brings dyspnea, and if persisted in, cardiac dilatation; but the dyspnea coming first, the patient usually slackens his effort before serious damage is done to the heart. It is unfortunately different with long-continued exertion, either mental or physical; here no warning dyspnea comes to the patient's aid, and he finishes his labor all unwitting of the injury he has done himself. That night he is restless, has some cardiac discomfort; the next day he feels very slack and tires very quickly. The condition does not improve; attacks of dyspnea supervene, till in a week or so he comes to you complaining of chronic dyspnea with exacerbations. However slight, these cases should be taken seriously; sometimes they are the beginning of a long downhill with death at the bottom, or the slope ends in a lower level of chronic invalidism. In any case it is seldom that the former standard of health is regained; even if it be, the wisely advised patient will act as if it were not. Labor of any kind must be at once and absolutely interdicted; breakfast should be taken in bed, and there should be no getting up for at least an hour and a half after breakfast is finished. Before the midday dinner there should be an hour's reclining, and two hours after it; going to bed should be at nine. When up, six gentle strolls of five to twenty minutes each, with good intervals of rest, should be taken; during the periods of rest the patient should be read to, chatted to, or otherwise amused. Great patience must be exercised; it is only by very slow and small degrees that the heart can regain its strength; remember how little it had to spare before, how tiny its length of "rope." Remembering this, and perceiving clearly how difficult, how disheartening it is to fight against the grim duress, the lack of courteous give and take, which thickened arteries show, the length of time required is easily understood by us and must, with many repetitions and never-failing gentleness, be constantly impressed upon the patient. From this it follows that the most important indication is to keep the arteries constantly dilated: first, by scrupulous attention to metabolism, correcting any evil tendency by diet, rhubarb, and mercury; next by temporary vasomotor dilators, and it must not be forgotten that the dose of these required to dilate thickened vessels is far greater than that needed in the case of healthy ones. But usually the heart muscle also requires a tonic. Strychnine is the best; if the pulse be quick and irregular, strophanthus or digitalis may be added, but it must always be guarded by a vasomotor dilator; nearly always a sedative such as bromide is desirable. Hence we arrive at the following prescription:

Liq. strychninæ, m. v;
Tinct. strophanthi, m. x;
Liq. trinitrini, m. ij;
Sodii bromidi, gr. x;
Tinct. cardamomi co., m. xxx;
Aquæ, q. s. ad, ℥j.
Take in two or three divided doses.

With this should be given the calomel and rhubarb pill, and in between each dose a chocolate tablet containing liquor trinitrin m. j.

With increasing experience the rôle played by the cirrhotic kidney in inducing

dyspnea seems to become more important. If there be no albumin in the urine it is often overlooked, especially in women; yet albumin is rarely present continuously in pure renal cirrhosis, and is not seldom absent for a week together; nothing less than estimating the quantity, weight, urea secretion, and microscopic findings of 24-hour samples for several consecutive days can give us any certainty of diagnosis. Here again we have to bear in mind that it is not the morbid anatomy of the organ we desire to know, but the state of its functioning. Does the kidney function well? If it does, then it is not the cause of the dyspnea, though perhaps it may have some fibrosis or other change. But if the renal excretion be deficient, and the deficiency be due to organic degeneration, then we must insist upon our patient now and always living down to the level of his damaged kidneys, so that the waste products of his metabolism never exceed the excretory power of these. This is the fundamental law in renal dyspnea; if it be not fulfilled other treatment is mere transitory alleviation; our patients will ever be ailing, and live in danger of serious illness. Should the reduced diet be insufficient to enable him to carry on his life-work, this work must be lessened correspondingly; yet it is wonderful how small a quantity of sustenance is requisite for the steady performance of most human occupations.

DIET IN CHRONIC HEART DISEASE.

To the *Lancet* of July 10, 1904, SCHOOT contributes his views on this subject, and in fact tells us that animal food in its various forms, especially fish and poultry, are allowable, but it hardly needs to be said that certain indigestible articles included under the heading of fish and poultry are to be forbidden; eels, fat goose breasts, and goose-liver pies are examples of this kind. The same rule applies to rich sauces or mayonnaise, for salmon, lobsters, and crabs taken with these accompaniments are much more trying to cardiac patients than they otherwise would be. Oysters, mussels, and game seldom do harm if fresh and prepared in a plain style, but highly smoked and salted fish or meat are objectionable because the great thirst which they produce easily tends to too much water being drunk. Among fatty substances butter and cream are by far the best, being easy of digestion. Fat bacon or the fat on a ham is, on the contrary, to be avoided on account of its indigestibility. The same rule applies to the hearty eating of fat. Oil generally does not agree well. Hot seasonings are injurious, red and black pepper being worst of all. They not only produce gastric irritation and great thirst, but they have a specially harmful influence on the kidneys, an influence which in cases of weak heart may lead to conditions full of danger. Sausages, goulasch (a kind of meat stew), and salads containing pepper are therefore to be avoided. On the other hand, vegetable salads without hot seasoning, and particularly when made with lemon-juice, are permissible. There are many other seasonings or spices, such as nutmeg, mace, cinnamon, and vanilla, which are capable of doing harm by their tendency to quicken the action of the heart. The same thing may be said of horseradish, which not only is apt to product flatulence, but also irritates the mucous membrane.

Easily digestible fruit stewed with the addition of a little sugar can be recommended, particularly on account of its favorable influence on gastrointestinal peristalsis, which is often so much impaired in heart disease that obstinate constipation is the result. For the same reason raw fruits which have to be peeled, such as apples, pears, apricots, peaches, and oranges, are often desirable. Grapestones may act as irritants and should be removed before the fruit is eaten. On the other hand, raspberries, gooseberries, currants, bilberries, cranberries, pineapples, walnuts, Brazil-nuts, and hazelnuts are to be prohibited, even when deprived of their membranous investment, for they may be injurious to sufferers from heart disease either from their indigestibility, or from irritant substances which they contain. Only those kinds of food which are quite easily digestible can be recommended.

Ice in any form whatever, whether as iced drinks, fruit ices, or ice pudding, may not only cause gastrodynia in cardiac sufferers, but is capable of producing congestion of the liver. This must be kept in mind even when the medical attendant

is compelled to prescribe ice for the relief of vomiting. At the same time nothing should be either eaten or drunk while it is very hot, as excitement of the heart's action is easily caused in that way.

It is impossible to urge too strongly that sufferers from heart disease always require a mixed diet. With them the use of a diet consisting exclusively of meat very easily leads to the excretion of urine containing an excessive amount of dissolved solids, and supersaturated with uric acid. The author has seen cases in which overindulgence in animal food appeared to have been the principal, if not the only, cause of irritation of the kidney with hypertrophy and dilatation of the heart. An entirely vegetable diet is no less injurious, for, in order to make up the requisite amount of nutritive material, such food must be taken in considerable quantities, whereby the stomach is overfilled, and apart from this the supposition that arteriosclerosis may be prevented by a dietary consisting of carbohydrates has been proved to be erroneous. Indeed, the very reverse of this is the fact, for it has been found that calcification of the vessels is encouraged by such a diet. Thorough comminution and copious insalivation of what is eaten are as important in diseases of the heart as in diseases of the stomach.

There is great diversity of opinion on the subject of tobacco smoking. Many think that smoking when not carried to excess is quite harmless in heart disease, and others consider that even in the cases in which the patients have found their symptoms aggravated by the use of tobacco the normal conditions are sure to be restored by a few months' abstinence. The author's experience leads him to regard tobacco with great disfavor, for he has seen quite a number of instances in which an excessive use of it was the only cause that could be assigned for the production of chronic heart disease and arteriosclerosis. In tobacco there are many substances besides nicotine that may act injuriously, and for this reason the partial removal of the alkaloid, a process to which tobacco has often been subjected in recent years, is no guarantee that much smoking may have no ill consequences. The author recommends patients suffering from heart disease either to give up smoking altogether, or else to indulge in it most sparingly, and in the latter case to use very dry tobacco and a long mouthpiece or pipe. A patient should always be informed that smoking is bad for his heart disease. Some years ago the writer had an opportunity of observing how dangerous opium smoking is for the heart, the patient being a woman, twenty-two years of age. At first a great smoker of cigarettes and afterwards of opium, she gave up the practice for a considerable time when placed under strict supervision, but the first attempt at renewal of opium smoking brought on a severe attack of cardiac failure, for the relief of which it was necessary to use camphor and hot applications over the heart.

As a result of observations made by Oertel, it has been very much debated whether sufferers from heart disease ought to drink at meal-times or not. The only condition which requires attention here is that the stomach shall not be overfilled, and the principal advantage of not drinking at meal-times is that the patients when they do not drink eat less than when they drink. In the treatment of fatty heart and general adiposity, as well as in plethora, it is better not to drink, but when it is desirable that the patient should have plenty of food there is absolutely no reason for the prohibition of drinking at meal-times, provided that the measures of precaution already described are complied with.

CHRONIC INTESTINAL DYSPEPSIA OF CHILDREN.

In the *Edinburgh Medical Journal* for September, 1904, BLAIKIE says that in the treatment of this state the patients should be kept free from undue excitement, whether pleasurable or the reverse, and evening parties, theaters, and excessive punishment are all equally deleterious.

Amongst drugs, the most beneficial are the alkalies, oleoresins, and bitter tonics. Bicarbonate of potash or soda and citrate of potash have a markedly beneficial effect, especially when combined with nux vomica and myrrh or coto. Thus a very useful preparation is: Potassii bicarbonatis, potassii citratis, ää 10 grains; tinctura nucis vomicæ, 4 minims; tinctura myrrhæ, 30 minims; infusion gentianæ comp. q. s. ad 3 drachms. Take t. i. d.

Combined with this treatment one finds that a powder containing rhubarb and soda, with a little gray powder, given every night, is of great benefit. If there is constipation, one gives sufficient rhubarb to insure a good motion in the morning, but when the bowels are quite regular it is still of great use in a diminished dose, and even when there is a tendency to diarrhea, by giving a small dose one gets the astringent action of the rhubarb; thus a relaxed condition of the bowels is no contraindication to its use. Another drug of the greatest use is aloes. It is best given in the form of decoctum aloes composita. When the appetite is poor, it can be given in drachm doses before meals. With this dose there is no cathartic action. When given between meals, one can give two drachms thrice daily, as Eustace Smith suggests, without undue laxity of the bowels; this form of administration is especially useful when the appetite is voracious. No doubt some of the beneficial action of this preparation of aloes is due to the myrrh which it contains, but one can give much larger doses of myrrh with good results. Forty minims of the tincture to a child eight years old can be easily borne. Coto is very useful as a substitute for myrrh, but probably is not superior to it. The author has used tablets of one grain of cotoin with excellent results. Its beneficial action seems to be due to the increased power of absorption which it causes.

Carbonate of magnesia, and when there is diarrhea and much epigastric pain, bismuth, are often of service. Quinine and the vegetable bitters, such as gentian, quassia, or calumba, are also found to be of use. Soltau Fenwick has stated that in "the gastric dyspepsia of children" there is a diminished production of hydrochloric acid, and (especially as we now know that hydrochloric acid is one of the most powerful of pancreatic stimulants) it therefore seemed of use to give a dilute solution of hydrochloric acid in this malady, which was accordingly done 2½ hours after meals, without, however, any satisfactory result.

Dilute mineral acids are, however, occasionally useful where improvement has commenced; under their exhibition, when not given too early, the child usually improves in general health; he rarely, however, puts on flesh, and his weight remains stationary, or he may actually grow lighter.

Pepsin was also given in a few cases, and seemed to have a beneficial influence; it was not given in a sufficient number of instances, however, to draw any definite conclusions as to its value. Charcoal was given as a mechanical means of removing the mucus and as a stimulant to the bowel wall, and its administration was found to be of distinct service. Small doses of alcohol given before or during meals are often useful. It is best given as sherry, slightly diluted with water or claret. Probably the beneficial effect of some of the tinctures used in the treatment of the disease may be in part due to the alcohol which they contain. Iron is not well borne while the disease is still at its height, but during convalescence it is extremely useful; it can be given in drachm doses of vinum ferri, combined with a similar dose of decoctum aloes comp. When most of the symptoms have disappeared, one may very cautiously begin to give cod-liver oil or syrup of the hypophosphites, but they must be given in small doses, and their effect strictly watched.

Treatment of Special Symptoms.—Little need be said under this heading, for full directions for symptomatic treatment are given in every text-book on children's diseases. One or two points are, however, worthy of mention.

Night-terrors: It is rare that special treatment is required for this symptom, but occasionally for a few nights it may be necessary to give some sedative. Antipyrin or phenacetine has markedly calmative action.

Nervousness: If the child is excessively nervous, bromides are frequently of great use, and can be given without hesitation until the general treatment renders their further use unnecessary.

Lienteric diarrhea: Arsenic, in the form of minim doses of liquor arsenicalis, is generally able to control the excessive action of the bowels, and at the same time it exercises a beneficial effect on the general course of the disease. If this fail, it may be necessary to give doses of two or three minims of laudanum.

Enuresis: Removal of tonsils and adenoids often is all that is necessary to

cure the condition. Belladonna, however, even without this operation, is generally successful in stopping the habit. It must be given in ascending doses, and it may be necessary to give it till it begins to exhibit its physiological effects. To a child of eight, one can generally give—when the drug is gradually increased—up to at least forty-five minims of the tincture, thrice daily, without undue discomfort; it seems to do good also to the general condition. It is practically always successful in checking sweating at night in these cases.

A RESTATEMENT OF THE ATTITUDE OF THE PROFESSION TOWARD PLACENTA PREVIA.

Under this attractive title McILWRAITH puts before us modern views in the *Canadian Practitioner* for August, 1904. There are many diverse opinions on this subject, but all are agreed that there should be no temporizing unless the patient can be placed under constant trained supervision within easy reach of the physician. There must also be considered:

1. The extent of the first hemorrhage, and its effect on the mother and fetus. If the fetus dies there can be no object in further delay. If the mother nearly dies, further delay is not justifiable, except for resuscitation as mentioned under treatment.

2. The certainty or uncertainty of the diagnosis. There must be some uncertainity about this until the placenta can be felt through the os. At the hospitals the author has had many cases come in with a provisional diagnosis of placenta previa in which the hemorrhage was later found to be due to some other cause.

3. Whether the hemorrhage was unavoidable or brought on by causes which could be avoided in the future. Accidents are more likely to cause hemorrhage when the placenta is previa than when it is normally situated. There is no doubt that unviable children have been saved by waiting, and when the conditions, as detailed above, are satisfactory it should be tried. The patient should be kept in bed and given opiates if necessary.

The next question is, what to do?

By far the most popular, and in the author's judgment the best, treatment is to do a Braxton Hicks version. Bring down one leg, and then leave the delivery to nature, making only sufficient traction on the leg to check hemorrhage in the interval of the pains, and giving such aid as may be required to deliver the aftercoming head. In partial cases the membranes, and in complete cases the placenta, must be perforated with a sharp instrument, as the endeavor to push the finger through detaches the placenta. Detaching the placenta is one method of treatment, but not the one the author advocates. Rapid delivery in the interests of the child results but too often in laceration or rupture of the uterus, postpartum hemorrhage, and death of the mother. Bipolar version can be done as soon as the os will admit two fingers. This amount of dilatation is present in about 99 per cent of cases in which hemorrhage has occurred. In the remaining one per cent the cervix and vagina should be packed with iodoform gauze. To do this put one pair of tenaculum forceps on the anterior lip and one on the posterior lip and draw the cervix gently down. Pack in and around the cervix with iodoform gauze. The remaining part of the vagina may be tamponed with a kite-tail tampon of absorbent cotton steeped in one-per-cent lysol solution. This tampon should be left from four to six hours, and renewed if the dilatation be still insufficient. While the hemorrhage is being controlled in this way, or if when the patient is first seen it has ceased from syncope, it is better to give the exsanguinated patient a subcutaneous infusion of normal saline solution before proceeding to further operative measures.

Some of the other methods are:

1. Many men advocate the use of Champetiers de Ribes's bag. The author has used it and found it to answer very well mechanically. It has never been in order since, and it caused the patient excruciating pain. If the bag is to be used it must be passed within the amnion; otherwise it detaches the placenta. The objections to this treatment are: (*a*) The bag easily gets out of order; (*b*) it causes pain sometimes; (*c*) it is difficult to sterilize; (*d*) it displaces the presenting part; (*e*) sometimes ruptures the uterus.

The average fetal mortality with this plan, so far as recorded, is 61 per cent—not a very good record.

2. De Paoli reports nineteen cases treated with Bossi's dilator and delivery by forceps or version, with the loss of one mother and three children—an extraordinary record. It is doubtful if this will be duplicated, for the dangers of dilatation by any method are great. Whitridge Williams recently published the history of a fatal case of placenta previa. He dilated the os with seeming ease with his fingers and delivered. Postpartum hemorrhage commenced. He drew down and sutured a lacerated cervix, but the woman died. The autopsy revealed the fact that the tear had extended up the uterus, and that the lower part of it only had been stitched. The author greatly prefers fingers to any of these branched steel instruments as a means of dilating the os. (Bossi's and Walscher's dilators have an indicator outside to show how far the points are being separated; but one cannot tell how much dilatation and how much laceration is being produced.) When one uses one's fingers in the method advocated by Harris, one can tell what he is doing and when to stop. It is to be remembered, however, that the author does not advocate dilatation in placenta previa by any method except gauze plugging as detailed above.

3. Lawson Tait advocates Cæsarian section for placenta previa, perhaps because he seems to have placed the maternal mortality from other methods at 50 per cent. Gustav Zinke, in 1901, quoted eight cases of Cæsarian section and two of Porro's operation; five mothers and six children lived. Two mothers were said to have been moribund at the time of operation, but even leaving these out the death-rate was 1 in 8, whereas the estimated mortality by other methods is only 1 in 18 or 20.

4. Rupture of membranes. When the pains are strong and the head comes down into the pelvis, rupture of the membranes may be sufficient, as the head presses on the placenta and controls the hemorrhage. We must remember, however, that rupture of the membranes is sometimes followed by a pause in labor, and this pause may allow dangerous hemorrhage to take place, which we are then without means of controlling.

Postpartum Hemorrhage.—The cervix is drawn down as for tamponing in antepartum hemorrhage, and the uterus, cervix, and vagina tightly packed with iodoform gauze. One writer has had good results from flushing the uterus with a solution of suprarenal gland, 30 grains to the pint of water.

Sepsis.—The obstetrician should always be as aseptic as possible, and he cannot therefore take especial precautions in these cases; but in giving a prognosis the very great danger of septicemia should always be borne in mind.

TREATMENT OF PUERPERAL SEPSIS.

TAFT in the *Yale Medical Journal* for August, 1904, gives the following advice:

1. That the most vital factor in the prevention of puerperal fever is the adoption of such rigid asepsis as is customary to-day in all surgical operations.

2. That almost equally important is the removal of all predisposing causes which may diminish the patient's powers of resistance.

3. That infrequent vaginal examinations during labor, and none at all when a normal condition is apparent from the external examination, tend toward improving our prophylaxis.

4. That, as suggested by Boldt, from our present knowledge we must still rely on the clinical aspects rather than on the bacterial examination in order to determine the proper treatment.

5. That the general treatment should consist of rest, stimulants, and nourishing food.

6. That medical treatment for the severe types of infection should consist of drugs to promote phagocytosis, and hypodermoclysis.

7. That no antistreptococcus serum of proved value has yet been discovered.

8. That the use of douches, whether vaginal or intra-uterine, as a routine, at any time either before or after confinement, tends to promote the development of sepsis. The only exceptions should be when an attempt is made to cleanse a vagina of a gonorrheal infection prior to confinement, and when used in connection with other treatment for a septic condition already developed.

9. That a sapremia is best treated by thorough cleansing of the vagina and

uterus, by means of the medicated douche, finger, or curette.

10. That the course of a pure, uncomplicated streptococcus infection of a severe type is not influenced at all by any surgical procedure whatever.

11. That all abscess cavities should be opened freely and as soon as recognized.

12. That vaginal drainage, either alone or combined with abdominal drainage, is indicated as soon as it becomes apparent that the peritoneum has become involved.

13. That a hysterectomy has a limited but not very clearly defined field in a few cases.

INTRATRACHEAL INJECTIONS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

MANGUM states in the *Charlotte Medical Journal* for September, 1904, that he was induced to make his first experiment with this treatment by a little paragraph in Nothnagel's Practice, in the volume on Diseases of the Bronchi, Pleura, and Lungs, in which it is said that "in the treatment of pulmonary conditions the injection of drugs directly through the glottis into the trachea deserves to be more generally used."

In studying the question as to the practicability of this method of applying drugs locally to the diseased surface, he searched diligently through all the literature available, in the attempt to find if the treatment had ever been used, but could locate no such report. Occasional references were found in which it was discussed as a theory, but no instance of its actual use. His interest in the matter became more absorbing as he considered its advantages, and finally obtained consent to risk what might seem a dangerous procedure. The first attempt being successful, he adopted it as a routine practice in all of his tuberculous cases, and has in each instance had his belief in its practical utility verified.

The drug he has used is ichthyol. This is, as we all know, a natural product, obtained by dry distillation from a bituminous mineral found in the Tyrol, containing a large percentage of sulphur. It is a powerful vasomotor constrictor, on mucous surfaces, thereby causing a rapid disappearance of hyperemia, and of the pain of congestion. It can penetrate the unbroken skin, showing its great diffusibility. It promotes such metabolism as sulphur is concerned with. It is a decided antiseptic, being quickly fatal to all pathogenic organisms. With a knowledge of these facts in mind, he determined to experiment along the line suggested above, and remarkable indeed have been the results. The ichthyol was applied mixed with cod-liver oil, in the proportion of five per cent; the quantity to be injected being combined as the treatment was administered.

The technique of this little operation is identical with the method by which intubation is performed, though there is of course not by any means so great a difficulty in manipulating through a normal larynx, even on the most delicate subject, as in cases where diphtheritic deposits, or croupous spasms, have almost entirely closed the chink of the glottis. Indeed, it might be said there is no difference whatever, provided a knowledge of the anatomy of the larynx is borne in mind, and the reduplications of the mucous lining upon either side of the vocal cords are not mistaken for the glottis itself.

The instrument used is one made for the author by Betz, of Chicago, consisting of an ordinary hard-rubber piston syringe, with the nozzle curved into a beak. With the mouth-gag in place, the index-finger of the left hand is introduced, the epiglottis is lifted out of the way, and the nozzle is passed on this finger as a guide directly down through the glottis, until the tip is below the cords and well within the trachea. One drachm of the mixture described above is immediately injected, the patient being directed to take a deep inhalation as the syringe is withdrawn, so that no portion of the oil is brought up into the larynx, where it would of course at once excite a violent spasm of coughing. This procedure must be accomplished whilst the patient is holding the breath, and usually requires, after some experience, from thirty seconds to one minute. The object in the inhalation as the syringe is withdrawn is that the oil may be forced by the influx of air deep down below the bifurcation of the bronchi, where, by its adhesiveness, it is spread along the mucous membranes of the tubes, giving free ingress and egress to the air, and interfering in no way, as a watery solution would,

with respiration. Usually a few bubbling râles are all that can be heard to indicate the presence of fluid in the chest, and these rapidly disappear as the oil is absorbed.

The introduction of the syringe point is of course at first objectionable and disagreeable to the patient, just as the introduction of a lavage tube into the stomach is disagreeable; but after a few treatments tolerance is established, and as in lavage, he soon learns to take it with no discomfort.

In the beginning the injections are administered daily, the intervals being gradually increased as the patient improves. In the cases which the author reports the average time in which daily injections were required was four weeks—a more protracted treatment being of course necessary in the far advanced, and a shorter time in the milder cases. Some of these cases were in his own practice, the others being in the practice of several professional brethren, who kindly assisted him in these experiments and in accumulating these statistics.

THE PHARMACOLOGY AND THERAPEUTICS OF URANIUM.

In the *Medical Chronicle* for September, 1904, TYLECOTE writes on this subject.

In describing the conditions in which he has found uranium therapeutically useful, the author finds it convenient to first take its external use. The salt used was always the nitrate, as it is the easiest to obtain pure at a reasonable price. A solution of two grains to the ounce is a very reasonable application to ulcers and abraded surfaces, such as ulcers of the leg; it acts much as sulphate of zinc, coagulating the albumen of the discharge, thus forming a protective coat, whilst it also directly contracts the vessels somewhat and also precipitates the albumen of the tissues. Thus it is astringent and a mild hemostatic. The author has found it very useful in many indolent leg ulcers as an alternative stimulant to lotio rubra, especially in cases where this had for some reason no effect. As a solid it is also hygroscopic, and this with some free nitric acid it contains makes it caustic; it is a good hemostatic for leech bites. In obstinate cases of gonorrhea the writer used a urethral injection of five grains to one ounce with very good results; it cured a case in six days on which a weak permanganate solution had had no effect in as many weeks, while when two cases were started with injections on the same day, one with zinc chloride two grains to the ounce, and the other with uranium, the uranium case invariably recovered first. It must be noted here that his solution was stronger than the zinc solution. After the results of his bacteriological experiments the author cannot attribute these results to a specific action on the gonococcus, but rather to the astringent action noted above. On the pharynx he tried it in two cases of chronic pharyngitis as a spray of ten grains to one ounce, one drachm sprayed three times a day after food. One case, of rather short duration, it cured rapidly with no by-effects; in the other, a very obstinate, old-standing case, the patient being a vocalist, it was not of much use, and on the twelfth day a trace of albuminuria appeared, which soon ceased on stopping the spray.

When administering uranium nitrate internally he always started very cautiously, at first giving one grain thrice daily immediately after meals and well diluted. He always examined the urine carefully from day to day, and if any albumin appeared, or, if previously present, and it increased in quantity, he always diminished the dose or stopped the drug for a time. Complaints of digestive disturbance due to the medicine were never met with, and as regards its action on the intestinal tract, one patient who had been taking five grains three times a day for some time said it made him constipated; in all the others no difference as regards defecation occurred. He had no case of diarrhea following its use. He used it in three diabetic cases, and has formed the following impressions regarding its use in diabetes: In every case it caused at the outset a rise of body weight, which continued if the dose was not pushed too far, and was accompanied by a feeling of improved condition and spirits on the part of the patient. In no case did any appreciable diminution in the daily amount of sugar excreted occur, although occasionally the polyuria was somewhat lessened. The patients all say they feel better for the medicine, which, the author incident-

ally remarks, has an astringent taste. In those cases in which the pulse tension is low enough at the commencement to detect slight variations by the sphygmograph, some improvement in tension occurs.

The author has adopted the following as signs of having reached the limit of the beneficial dose, and as indications for diminution of the dose or stoppage of the drug: (*a*) The weight no longer increases, but may begin to drop; (*b*) some complain of neuralgic pains more than they previously did; (*c*) any increase in the sugar excreted; (*d*) the occurrence of traces of albuminuria where they had not previously occurred, or any increase in previous amount. Of the three diabetic cases two were oldish patients and fairly chronic cases, while the third was an acute case in a man of thirty-nine. In the first case the patient gained 3 pounds and maintained her good condition; in this case diabetic diet had a marked effect on the sugar excretion. Under uranium the quantity of urine and sugar did not materially alter, but they increased somewhat on stopping the drug; there were no by-effects. Case 2, unaffected by diet, gained 3½ pounds under uranium, and the polyuria lessened somewhat. The dose was gradually raised to 5 grains, stopped because of constipation and a temporary cloud of albumin, restarted later at the full previous dose with no ill effect, thus showing the ease with which tolerance to uranium is established. Case 3 was the acute case, a much emaciated man with an occasional diacetic acid reaction in the urine. The effect of uranium on his general condition was marvelous—he gained 18½ pounds in ten weeks, 7 pounds being in the first week; the effect on the urine itself was practically *nil,* but he left the hospital to go to work, which he had long since given up, having been under various sorts of treatment for two years.

Observing the improved condition and body weight of the three diabetic patients under uranium without any digestive or other disturbances resulting to contraindicate its use, he determined to try its effect in selected cases of phthisis, thinking it might there also improve the general condition and body weight. Three cases were selected, all of which had been some time in hospital and whose condition was fairly stationary. One was steadily losing weight; in the other two cases the weight had been constant for some weeks. Under small doses of uranium nitrate they gained, in two cases, 3 pounds each in about three weeks, in the other case 1 pound in a week. One case began to lose again as soon as the drug was stopped; another left the hospital, and was lost sight of. The results obtained seem to warrant further trial of uranium as a general tonic in conditions associated with wasting, such as diabetes and phthisis.

PUERPERAL ECLAMPSIA SUCCESSFULLY TREATED BY RENAL DECAPSULATION.

A year ago EDEBOHLS (*Boston Medical and Surgical Journal,* June 2, 1904) reported the first case of renal decapsulation for puerperal eclampsia. The patient was a primipara, aged twenty-three years. Typhoid fever during the fourth month of pregnancy. Symptoms of nephritis first noted during the seventh month. Uremia and eclamptic seizures near the end of eighth month. Five severe convulsions within sixteen hours, followed by forced delivery during fifth convulsion. Freedom from convulsions for forty-six hours after delivery. Then return of convulsions, six severe convulsions, not counting minor manifestations, occurring in eighteen hours. Decapsulation of both kidneys. No further convulsions, and rapid restoration to complete health. The patient still enjoys perfect health, with urine free from albumin and casts, fifteen months after operation.

More recently Edebohls has performed renal decapsulation for puerperal eclampsia upon the undelivered woman. The patient was a primipara, twenty years of age. During the seventh month of pregnancy the urine was normal. Nineteen days before the date of expected confinement patient complained of specks before the eyes and dizziness, and the urine contained traces of albumin. Eight days later edema of the feet, puffiness of the eyelids, beginning coma, and total blindness supervened. Dropsy increased, coma deepened, and total blindness persisted during the following four days. Patient then had the first convulsive twitching, which recurred within the next two hours.

Anasarca general. Patient voided 360 cubic centimeters urine during preceding twenty-four hours, with a total output of only 1.44 grammes of urea. Cervix tightly closed. No sign of beginning labor. Fetal movements present; fetal heart sounds clear, distinct, and regular.

Bilateral renal decapsulation performed the same day. Both kidneys were enlarged. The kidney surface, after removal of the capsule, presented everywhere a dirty-gray, turbid, sluggish, and stagnant appearance, both organs being choked with inflammatory exudate. The operative diagnosis was bilateral acute or subacute parenchymatous nephritis.

During the twenty-four hours following the operation there was almost complete suppression of urine, but the patient's general restlessnesss and delirium disappeared. Sight was restored, and there were no further twitchings or convulsions.

During the second twenty-four hours after operation there was a copious flow of urine, and patient's general condition improved greatly.

Spontaneous labor began forty-eight hours after operation, at which time two slight twitchings, the last in the history of the case, occurred. Two living children were delivered by forceps, but the second child breathed only a few times after its birth.

During the four or five days immediately following delivery a perfect deluge of urine, loaded with casts of all kinds and containing .05 to .6 per cent of albumin, was secreted. At no time after delivery was there any cause for anxiety. The puerperium ran a normal course. Both lumbar incisions healed by primary union throughout. Three weeks after operation the patient left her bed, and a week later resumed her duties in life.

During the four and a half months that have elapsed since operation the patient has nursed her child continuously. Mother and child are enjoying excellent health. Mother's urine is normal except for an occasional hyaline cast.

This case proves that renal decapsulation can arrest the progress of uremia and of convulsions of renal origin in the undelivered woman.

The production of abortion and the induction of permature labor, with all that those proceedings imply for mother and child, need not henceforth be the only ultimate resources in the treatment of eclampsia.

CHOLECYSTECTOMY.

The removal of the gall-bladder does not involve a greater risk than the operation of cholecystotomy. MOYNIHAN (*Lancet,* April 30, 1904) believes that in many cases it is a simpler and shorter operation than the removal of a multitude of small stones, besides being safe and speedy. During the past two years experience has inclined him to advocate strongly the frequent, though not the invariable, adoption of cholecystectomy in preference to cholecystotomy. Its advantages are that it removes the chief source of the disease, thereby preventing in a great measure a recurrence either of stones or of the inflammation which marks their presence; that growths in the gall-bladder or adhesions around it are subsequently impossible; and finally, that the wound, if drainage is not required, may be caused to heal throughout by first intention. The gall-bladder is devoid of any strikingly useful purpose, and its removal does not add to the danger of the operation. In most cases the necessity for drainage is obviated by removing that structure, the drainage of which seemed imperative, though if drainage of the ducts is necessary, this can be done satisfactorily. The presence of a stone in the common duct does not prohibit the operation, but drainage after the removal of the stone in the duct or in the ampulla is necessary.

The one disadvantage that may be urged justly against cholecystectomy is the fear that a later operation may become necessary, for stones can and do form in the hepatic and common duct. Such an operation would be more difficult and certainly more dangerous.

The list of conditions demanding cholecystectomy may be made to include almost all cases of gall-stone disease requiring surgical treatment.

The complete operation is performed in the following manner: A vertical incision, usually five inches long, is made near the outer margin of the right rectus muscle, and the muscle fibers are split, obtain-

ing additional room, if required, by continuing the upper end of the incision along the costal margin, upward and inward. All adhesions of the gall-bladder and ducts and liver having been cleared, the liver is rotated by gentle traction upon the gall-bladder until the cystic and common ducts are straightened and brought upon a level with the wound. By this maneuver the operation is rendered simpler and quicker. The gall-bladder may now be removed from before backward or from behind forward. The author prefers to divide the cystic duct and to secure the cystic artery before freeing the gall-bladder. By dragging upon this organ the cystic duct is made clearly discernible. Its peritoneal investment is divided and stripped up along the duct toward the hepatic and common ducts, so that a cuff of peritoneum is raised up from the cystic duct. The latter is divided after securing it with a catgut ligature, and the cystic artery is defined and secured. The peritoneal cuff is then turned over the divided end and sutured. If it is intended to drain the common duct no ligature of the cystic duct is necessary. Instead, the cystic duct is cut off at its junction with the hepatic and common ducts, and into the opening that is left a rubber drainage-tube is stitched. The gall-bladder is then stripped up from behind forward. The separation from the liver is readily effected by stripping up with the finger, around which a thin strip of gauze is rolled. The peritoneum which passes from the liver to the gall-bladder is cut with scissors about three-quarters of an inch away from the liver, so that after removal of the gall-bladder the bared surface of the liver may be covered in by peritoneum. There is occasionally some bleeding from the denuded liver. This is readily checked by a suture or by the firm pressure of a hot swab or sponge. If the common duct is drained, it is well to put in two other drains, one to the inner side of the duct, toward the duodenum, and one to the outer side, toward the kidney pouch. These drains, whether of gauze or rubber tubing, should be stitched in position with one or more sutures of catgut, and should be left in for eight or ten days. At the end of this time their removal is quite easy. It is necessary to stitch them in position to prevent their being moved away within a few hours on account of the constant movements of the liver during respiration.

SARCOMA OF THE LONG BONES.

The final results in a series of cases of sarcoma of the long bones treated at the Massachusetts General Hospital and reported by SCUDDER (*Boston Medical and Surgical Journal*, June 2, 1904) represent all those patients who could be traced or whose records were complete after several years.

There were six amputations at the shoulder-joint for sarcoma of the humerus. There was no reply from one case. There was recurrence in the axilla in one case. There was one case of giant-cell sarcoma, in apparent health three years and four months after the operation. There were metastases in the lungs in two cases, and probably in a third.

There were four amputations of the thigh for sarcoma of the tibia. One giant-cell sarcoma, in good health six years after the operation. One lived two years and five months and was drowned. One is living three years and six months, in good health. One died of metastases in the lungs.

There was one amputation at the hip-joint for disease in the lower end of the femur. This patient died thirteen months after the operation. There were two resections—one of the tibia, one of the ulna; each a case of giant-cell sarcoma. Each is at present well, three years and two months after the operation. There was one partial operation upon the tibia. This case is in fair health five years after the operation, although a probable recurrence is present in the leg; there was one amputation above the elbow in perfect health fifteen years later.

In this series of cases there were five giant-cell sarcomata. All of these have remained well for periods varying from three years and four months to fifteen years since operation. After a study of the literature bearing on this subject and of the cases here reported, the writer concludes that if the giant-cell sarcoma of the long bone is limited to the bone and is localized in the bone, involving only a small area, a resection or partial operation is justifiable; but if the soft parts are

in any way involved, or the disease in the bone is extensive and of long duration, that then an amputation is the best treatment; an amputation in the continuity of the bone, if the lower end or the diaphysis is involved, or an amputation at the joint above the disease, if the disease is high in the shaft. Exarticulation at the joint above the disease, at the shoulder or at the hip, is indicated only in those cases in which the disease cannot otherwise be completely removed. Local recurrences after the conservative treatment can be satisfactorily handled. There appears to be no increase in the likelihood of metastases following local recurrence. The *x*-ray is of great value in diagnosis, particularly early in the development of the disease, and in those cases in which no positive diagnosis has been made.

GASTROENTEROSTOMY FOR SIMPLE ULCER OF THE STOMACH AND DUODENUM—ANALYSIS OF ONE HUNDRED CASES.

MOYNIHAN gives in the *Annals of Surgery* for May, 1904, an analysis of 100 gastroenterostomies for gastric ulcer, with a mortality of two per cent. Eighty-five cases were operated upon for chronic ulcer with intractable dyspepsia, or dilated stomach, with one death; a man of twenty-eight perishing from strangulated internal hernia. All the small intestines, with the exception of about fifteen inches of the lowest portion of the ileum, had passed through the opening in the transverse mesocolon into the lesser peritoneal cavity, and had become strangled by the margins of the opening. Fifteen cases were operated upon for profuse and recurring hemorrhage, with one death in a patient aged sixty-two years.

There were 56 females and 44 males. The youngest patient, a female, was aged seventeen; the oldest, a male and a female, were each sixty-two. The average age was thirty-five. In 10 cases the induration around a chronic ulcer was so marked that the presence of a "tumor" is recorded.

In 58 of the cases the presence of a single ulcer or of the scar of a single ulcer was noted. In 20 cases there were two ulcers, in 4 there were three ulcers, and in 7 the ulcers are described as being multiple. In the last 50 operations more than one ulcer was found in the stomach on 22 occasions. Duodenal ulcer was found alone in 9 cases; with one or more gastric ulcers in 13 cases.

The great majority of ulcers were found in the pyloric third of the stomach; rarely in the cardiac third. Adhesions which were noticed in 22 cases varied greatly in extent and in complexity. In each of two cases in which perforation of an ulcer had occurred the whole stomach was densely adherent, and it was difficult to free the stomach sufficiently to allow of a gastroenterostomy.

Several of the patients complained of little more than severe, intractable dyspepsia. Vomiting had been observed as a repeated occurrence in 44 cases.

Hematemesis had been recognized. apart from those cases operated on because of the hemorrhage, in 21 cases. Melena was observed alone in 3 cases, in all of which a duodenal ulcer was found. Hematemesis and melena were observed together in 6 cases, in 4 of which gastric ulcer alone was found; in 2, both duodenal and gastric ulcers.

Pain was the most constant and the most distressing symptom. It appeared sometimes before the meal was finished, sometimes half an hour or an hour afterward. A "hunger-pain," eased by the taking of food and appearing two to four hours after the meal, was noticed in cases both of gastric and of duodenal ulcer, and was always associated with hyperchlorhydria.

Hemorrhage was the immediate and determining cause of operation in 15 cases. In all of these there had been symptoms of stomach trouble for a shorter or longer time before the onset of the bleeding. Several of these patients were in a desperate condition. In 5 of them saline intravenous infusion was employed at the time of operation, from 3 to 5 pints being given according to the patient's needs. The hemoglobin percentage was 18, 22, 25, 28, and 33 in five of the most serious cases; in the rest it was above this point or was not recorded. In all of these patients gastroenterostomy alone, without the excision of the ulcer, was performed; and in not one of them was there any trace of renewed bleeding after the operation. There is a very remarkable tendency to spontaneous cessation in gastric hem-

orrhage. In hemorrhage from what is known as an "acute" ulcer, one of the most assured events is the spontaneous cessation of bleeding. Though the hemorrhage may be copious and alarming, it is rarely fatal. In chronic ulcer the same tendency is noticed; and, indeed, in some cases in which an operation has been performed the ulcer has been found, and the bleeding vessel has been seen plugged with a firm clot. The factor which determines a recurrence of the hemorrhage is distention of the stomach. In all of the cases operated upon by the author distention of the viscus has been observed, and in some it has been enormous. The stretching of the ulcer caused by the gastric distention is chiefly responsible for the repetition of the hemorrhage.

If the ulcer is readily found it may be excised, but in any case gastroenterostomy should be performed as well, for the ulcer may be difficult or impossible to recognize; it may not be single; and if, therefore, one ulcer is excised, another may be the source of the hemorrhage, and the continuance of the hemorrhage prove fatal. Two cases of this kind are recorded.

In three patients regurgitant vomiting was observed after operation; in one this ceased on the tenth day after the stomach had been washed out once; in another the painless vomiting of bile continued nearly a year; in the third case enteroenterostomy had to be performed. Since making sure in all these operations that the lower end of the opening was at the greater curvature, the author has never seen the vomiting of bile in any case.

Gastric tetany has been observed in greater or less severity in five cases. In three it was slight and only affected the hands, forearms, and the calf muscles. In two it affected these muscles, the neck muscles, and the abdominal muscles, and in both the patients experienced the utmost agony. Gastric tetany in its severer forms is a complication of old-standing dilatation of the stomach that can be prevented by the earlier performance of gastroenterostomy.

Chest complications were seen in three cases; in one there was a sharp attack of pneumonia; in two there was acute bronchitis.

Postoperative pneumonia is septic in origin, and is due in most cases to the inhalation of putrid material from carious or unclean teeth. Prior to operation the patient should be supplied with a toothbrush and a bottle of an antiseptic mouthwash, and instructed to brush the teeth freely every two hours. In addition all food given should be liquid and sterilized.

The stomach is washed out the day before the operation, the washing being continued until the fluid returns quite clear, and a second washing takes place about an hour before the operation.

After the operation the patient, when in bed, is propped up in the semirecumbent position by five or six pillows, or by the bed-rest. If very ill and in urgent need of fluid nourishment, water, milk, or other fluid is given at once in small doses rapidly increased. Saline enemata of 5 to 6 ounces, with or without brandy, are given every four hours, and a simple aperient enema is given every twenty-four hours. The toilet of the mouth is still carefully supervised.

The anterior operation of Wölfler was performed in five cases, the posterior of von Hacker in 94, and Roux's operation in one. Roux's procedure is ideally perfect, as it reproduces almost exactly the normal conditions. Its sole disadvantage is that the time necessarily spent is at least ten minutes longer than in an ordinary posterior gastroenterostomy. The author is so well satisfied with the results of the posterior operation, and with the perfectly uneventful course of the great majority of cases, that he does not believe there is any need for the routine adoption of Roux's method.

In 92 of the cases the result of the operation has from the first been as satisfactory as one could wish. Appetite has soon returned, and food is taken in any quantity with relish. All these patients have gained in weight. In the remaining 6 cases the results have not been so good. In every one of these hyperchlorhydria was pronounced before the operation, and has proved a source of pain and inconvenience afterward. Of the six patients, three have improved greatly under medical treatment, continued from three to five months, and are now quite well; one is almost well, and two are still under treatment. The last three have been operated upon during the past eight months.

In three cases not included in the 100 the author performed pyloroplasty, but he does not intend to perform this operation in any subsequent case, as he believes gastroenterostomy to be a much more satisfactory way of dealing with any condition of pyloric stenosis. Now that the mortality is reduced to so small a figure as two per cent, gastroenterostomy may be considered as a method of treatment in a much earlier stage of chronic ulcer of the stomach.

UMBILICAL CORD—INDICATIONS FOR LIGATION.

DAVISSON (*Cincinnati Lancet-Clinic,* May 7, 1904) believes that in a vigorous infant, when respiration is established and uterine contraction is firm, the cord should not be ligated until it ceases to pulsate.

In a vigorous infant, when respiration is established but the uterus is not contracting, or the placenta is detached, ligation should be done irrespective of funic pulsation.

In a feeble infant, when respiration is established and uterine contraction is firm, ligation should be delayed.

In a feeble infant, when respiration is not established and uterine contraction is firm, ligation should be delayed if it is not imperative to remove the child to a distance from the mother in order to institute respiratory movements.

In a feeble infant, when respiration is established but the uterus is not contracting or the placenta is detached, ligation should be done at once.

FLOATING LIVER.

Anatomically, PRENTISS (*American Journal of Obstetrics,* May, 1904) divides cases of floating liver into three classes:

1. Anteversion—a slipping forward or downward of the anterior border of the liver, the posterior border remaining in place or moving upward and forward.

2. Oblique displacement—the right lobe remains in place or descends, while the left lobe falls to the umbilicus or lower.

3. Complete displacement—when the liver is separated from the diaphragm by a considerable space.

Cases of the first class are rather common. Oblique displacements are less common, and complete displacements are very rare. In these cases, although the liver is unconnected with the diaphragm the movements of the organ are usually very limited, owing to the intimate connection with the vena cava.

The peritoneal attachments are all much stretched, and may even appear as a mesentery. With the descent of the liver the duodenum and pyloric end of the stomach move downward. Often there is a general splanchnoptosis, of which floating liver is but one phase.

Uncomplicated dislocation of the liver often gives rise to no symptoms, or at most to a dull, dragging pain in the right hypochondrium, which is relieved when the recumbent posture is assumed.

Various functional disturbances of the stomach and intestines are quite frequent accompaniments of the general ptosis. There also occur all grades of neuroses similar to and dependent upon the same cause as those seen in floating kidney and enteroptosis. Pressure of the organs on neighboring structures may give rise to special symptoms. Einhorn has given a very satisfactory classification of its clinical manifestations. He divides the cases into five groups:

1. Those without symptoms.

2. Dyspeptic cases, with indefinite digestive disturbances.

3. Hepatalgia—almost constant pain in right hypochondrium, often radiating to back and shoulder blades. Sometimes relieved by recumbent posture.

4. Cases of hepatic colic.

5. Asthmatic cases, feeling of fulness in upper abdominal region, with dyspnea.

The colic in these cases is similar to Dietl's crisis in cases of floating kidney.

Gall-stones frequently accompany floating liver, and to them the colic is often due. Sometimes it is due to kinking of the common duct. At others it may be accounted for by pressure on other structures, or by twisting or stretching of the peritoneal supports of the liver and stomach.

The diagnosis rests upon the size and character of the tumor and the absence of liver dulness over its usual area, the percussion note being normal lung resonance. If the mass can be pushed under the diaphragm and the liver dulness returns to

its normal area, the diagnosis is certain. Many errors in diagnosis have been made.

Medical treatment is confined to building up the system by tonics, electricity, hydrotherapy, massage, gymnastics, etc. Rest in bed in the acute cases until the symptoms subside. A well made abdominal supporter is by far the most important therapeutic measure. Sometimes an air-pad placed within the binder is advantageous.

If medical measures fail to relieve cases of anteversion and lateral displacement, suturing the organ into position is to be done. In complete ptosis of the liver it is doubtful if the organ can be retained in its normal situation by any operation yet described.

BRACHIAL NEURITIS.

The scanty attention which brachial neuritis has received in modern text-book and current literature appears to BUCKLEY (*Lancet,* April 16, 1904) to be remarkable, although it is as well defined as sciatica and quite as painful and disabling.

The prominent symptoms are pain, varying in degree but often very severe when at its height; tenderness of the affected nerve trunks, and of certain cutaneous areas related to them; weakness of certain muscles and limitation of movement, due partly to this and partly to changes in the subacromial bursa, or in and around the joint; trophic changes, rarely severe; and sensory symptoms such as anesthesia and hyperanesthesia, which are often very slight, but often persist after the other symptoms have disappeared.

The diagnosis may be difficult. All nerve pains in the left brachial region have a tendency to resemble anginal pain and to be accompanied with cardiac distress. Aneurism is a possible source of error, and tumors of the cervical spine or of the bones of the shoulder may by pressure on the nerve closely simulate neuritis or cause neuralgia, while lesions of the cervical cord must not be forgotten. The influence of movement, the presence or absence of tenderness, and in some cases the use of the *x*-rays, are important aids.

With regard to treatment, in cases commencing acutely, whether as part of a general fibrositis or as a simple neuritis, rest in bed is necessary at first, with purgation and treatment suitable to the general condition. Colchicum and alkalies may be useful in gouty subjects, or salicylates if the case if of rheumatic origin. In acute cases, aspirin with or without phenacetine is of much value, and mesotan for external application is often very useful. Poultices and hot applications generally give relief to the pain, and where they fail ice is sometimes of use. Coal-tar analgesics, when given in regular and sufficient doses, are found more generally useful than opium or its derivatives for the relief of pain. In most severe cases, however, morphine may be necessary.

When the acute stage is past, rest to the affected limb is still of the utmost importance. This can usually be secured by the use of a sling, but it is sometimes better to bandage the affected limb to the side.

In the chronic cases of gouty origin, alkalies and iodide of potassium are of value, and chloride of ammonium may be tried, but otherwise drugs, with the exception of the analgesics, are of little use, and, considering the long duration of the majority of cases, other measures for the relief of pain are desirable whenever possible. The greatest benefit in this respect probably comes from the free use of blisters along the affected nerve trunks or over the tender points, while subsequently, or in cases in which the pain is less severe, galvanism has an anodyne effect, and both undoubtedly exert a beneficial effect upon the general course of the disease. Faradism and the sinusoidal current are of use in the treatment of the wasted muscles, and some authorities have found high-frequency currents of benefit.

Massage must never be used as long as the nerves are acutely inflamed. Later it is of value, unless it causes any marked pain.

In the rheumatic and gouty cases a mineral-water treatment is beneficial, including vapor baths and hot douches.

The diet and digestion call for treatment often. Tonic treatment by drugs and change of air is generally desirable in view of the debilitating effect of the long-continued pain. A bracing inland climate is preferable in many cases to the sea, but a clay soil should be avoided.

CANCER—TREATMENT WITH RADIUM BROMIDE.

An excellent opportunity was recently afforded PLIMMER (*Lancet,* April 16, 1904) to investigate the effect of radium bromide upon seventeen cases of carcinoma. Many of the cases were in an advanced condition. The amount of radium bromide used was 30 milligrammes, enclosed in a vulcanite capsule covered with talc.

The diagnosis was confirmed in all of them either by the examination of the primary growth or by the excision of a nodule.

The individual exposures varied from forty minutes to five minutes; and the capsule containing the radium was placed directly on the nodules or lumps, the only thing intervening between the radium and the skin being the talc top of the capsule. The cases were left for a month after the exposures and were then examined. The effects in all the cases were negative, either no change or an increase in the size of the nodules.

Three cases were all about to slough when they came for treatment, and there is nothing whatever to indicate that the sloughing was in any way hastened by the treatment. The effect on the skin varied in the different cases; an exposure of ten minutes was generally sufficient to produce blistering, and then scabbing, and under the scabs there was found a very slowly healing ulcerated surface. The radium had apparently no effect with regard either to causing or to relieving pain, and the irritation of the blisters was slight.

From three of the patients who died some nodules which had been treated were excised and subjected to a careful microscopical examination. In all these cases no change was found either in the cancer cells or in the fibrous tissue, and none were degenerated. There appeared to be an increase in the amount of the subcutaneous round-celled exudation, which was greater in amount in those nodules which had been more recently treated, but the irritation of the skin would sufficiently account for this. Ehrlich's laboratory, however, records some very satisfactory and striking results obtained by treating very rapidly growing nodules of inoculated cancer in mice with radium. The nodules decreased remarkably in size, but it was apparently difficult to get rid of the last bit of the nodule, probably on account of fibrous changes. These results are much the same as those obtained by Exner (Vienna) in a case of melanotic sarcoma with multiple rapidly growing nodules in the skin. It appears as if the emanations from radium can only act upon young and rapidly growing cells, and that older cells, especially if surrounded by fibrous tissue, are less and less easily affected, and if there be an excess of fibrous tissue the cells are not at all affected.

MINOR SURGICAL LESIONS.

Attention is invited by CODMAN (*Boston Medical and Surgical Journal,* April 7, 1904) to the difficulty of differentiating some minor surgical lesions, particularly of the wrist, shoulder, and ankle. The treatment follows the proper diagnosis.

A majority of the sprains which do not promptly recover are breaks. Among the commonest of these unrecognized fractures is that of the scaphoid of the wrist. There is no deformity, no ecchymosis, no crepitus, no abnormal mobility—the classical signs of fracture are absent. There is localized swelling and tenderness in the region of the scaphoid bone—*i.e.,* in the radial half of the wrist-joint; limitation of active joint motion and sharp pain called forth by efforts at forced passive motion. The diagnosis should be confirmed by the *x*-ray. The treatment is to prevent movement of the joint while there is still a hope of the fragments uniting. Three weeks may be a fair time for this stoppage of movement. When union has not taken place after a considerable time, the proximal half of the bone should be excised.

Another injury of the wrist spoken of in this connection is dislocation of the semilunar bone. It often occurs with fracture of the scaphoid. It may be the only lesion, and may then be reduced by manipulation without open incision.

The method of reduction of the semilunar bone is to forcibly extend the wrist. An assistant then makes pressure with his two thumbs over the flexor tendons of the wrist on the semilunar bone, while the surgeon, with the assistant's thumbs still in position, flexes the wrist completely.

The os magnum slips over the posterior horn of the semilunar, and the latter pops into its position on the radius.

Tuberculosis of the wrist-joint is sometimes found confined to the region of the scaphoid, so that the swelling, tenderness, and spasm closely resemble the condition of fracture. In diagnosis, the absence of history of injury, the slow onset, the extreme grade of spasm of the muscles, and local temperature are important aids. The *x*-ray is the decisive test.

Rheumatoid and osteoid arthritis may also be confusing when occurring in the wrist-joints.

Tenosynovitis of the tendons of the thumb and long extensors of the wrist should be considered in connection with apparent sprain of the wrist. When the common bursa of the radial extensors appears enlarged and fluctuant after an injury to the wrist, it is almost certain that a fracture of the lower end of the radius exists, even if no displacement of the bone is seen and no other deformity is present. This is generally borne out by the *x*-ray.

No surgeon practices long without seeing puzzling cases of lesions in the shoulder-joint. The *x*-ray is particularly useful in indicating fractures of the greater tuberosities, which appear like laminæ torn from the head of the bone. Unfortunately the fracture of the lesser tuberosity is apt to be unrecognized in the *x*-ray because the facets pulled off by the subscapularis fall in the shadow of the rest of the bone. The importance in treatment of recognizing these lesions early is incident to the fact that the shoulder should be immobilized for a continued period to allow the facets of bone torn away by the muscles to form new attachments. Even if motion is not allowed it is unlikely that union will be obtained in these cases.

When inflamed bursæ are discovered in the shoulder-joint, the treatment is the same as in inflamed serous cavities in other portions of the body—*i.e.*, mechanical rest and counter-irritation. The form of work which has produced the inflammation must be stopped, and the motions of the joint must be restricted. A very effective form of treatment of the mild cases is simply pinning the coat-sleeve to the coat.

The ankle-joint also presents obscure lesions. One of these, not at all uncommon, which used to be classed with sprains, is impacted fracture of the os calcis. The salient points of this affection are: history of a fall on the feet or heels; tenderness over the os calcis; ecchymosis just above the sole on both sides of the foot; shortening of the distances between the malleoli and the floor as compared to the other foot; no crepitus, abnormal mobility, or obvious deformity. The treatment of such cases should be directed to preventing the patient from walking on his feet before bony union has taken place. When the acute symptoms have subsided, and the patient begins to walk, he should wear a flat foot-plate to prevent increasing pronation of the foot.

Perhaps the commonest overlooked fracture about the ankle is oblique fissure of the external malleolus. Diagnosis depends on local tenderness, ecchymosis, and the *x*-ray. This fracture is the badly sprained ankle seen before the *x*-ray. The fracture should be treated as such.

In all joints the operator will be surprised to find how often the presence of ecchymosis and accurately localized tenderness are proofs of fracture where no crepitus, deformity, or abnormal mobility can be obtained. A little brushing up of the practitioner's knowledge of the anatomy of the bursæ will help astonishingly in making diagnosis of these obscure lesions.

HERNIA—OPERATIVE RESULTS.

HILGENREINER (*Beiträge zur klinischen Chirurgie,* Bd. xli, Heft 2) reports 828 cases of hernia observed in the German Medical Clinic at Prague between 1895 and 1902. A family predisposition was noted in 45.7 per cent of the cases and an individual predisposition in 20 per cent. The number of operations in uncomplicated hernia was 471 on 420 patients.

Of this number there were 446 inguinal hernias in 397 individuals. The inguinal hernias were found almost exclusively in adult men; only 32 being noted in women, and 20 in children under 10 years. The youngest patient was twelve months old, and the oldest sixty-nine years of age. The fiftieth year was considered the age

limit, prior to which operation was indicated by the presence of the hernia alone.

Bassini's operation, modified by not disturbing the position of the spermatic cord, was performed almost exclusively during the last five years. The average duration of hospital residence after operation was fourteen days. Primary union was obtained in 99.2 per cent of the last 115 cases. There was but one death, this being from lobar pneumonia on the tenth day after operation. This gives a mortality of 0.23 per cent.

Of the patients operated upon by the modified Bassini method, 181 were reexamined two years after the operation, and 91.8 per cent were free from recurrence; in 98 of these the rectus muscle was sutured to Poupart's ligament, with freedom from recurrence in 92.9 per cent.

Upon 13 individuals 15 operations were performed for uncomplicated femoral hernia, by Fry's method of freeing the inner third of Poupart's ligament and suturing it to the pectineus and the horizontal ramus of the pubis. In none of them was a recurrence noted. In 5 cases of umbilical and 5 of ventral hernia, 5 patients out of 7 in which the ultimate result is recorded remained well.

The number of strangulated herniæ treated was 357 in 349 patients; the greater number occurring in women. Gentle taxis gave 66 recoveries and no deaths. The proportion was 10 inguinal to 7 femoral and one umbilical hernia. During the past few years Schleich's method of local anesthesia was employed in the majority of these cases, with a reduction in mortality from 34 to 10 per cent.

The usual procedure in the gangrenous cases was primary intestinal resection. Among the cases brought to the clinic there were several in whom forcible taxis had been employed, all of which terminated fatally. These included 6 cases of reposition *en bloc,* and one each of laceration of the hernial sac, severe injury of the testicle, and avulsion of the vermiform appendix which had been contained in the hernial sac.

The autopsies determined the causes of death as follows: Peritonitis in 28 cases, penumonia in 12, intoxication in 11, sepsis in 4, lipomatosis cordis destruens in 5, marasmus universalis in 2, and other causes in 3. The average duration of the strangulation in the fatal cases was five days, and in 5 patients who died before operation only three days. Rupture of the large intestine was noted in 16 cases, hernia of the intestinal wall in 17. In 9 cases strangulation occurred at the internal inguinal ring.

Unusual cases were: Typhlitis in a left-sided femoral hernia; 2 cases of appendicitis in the sac of an inguinal hernia; 3 cases of hernial tuberculosis; 1 of intestinal hemorrhage after herniotomy; 1 in which injury to the bladder was diagnosed only after operation; 1 of hernia properitonealis; 2 cases of pulmonary infarct; and 1 case of bilateral strangulation in a bilateral inguinal hernia.

LIGATURES—EXPERIMENTS WITH THE McGRAW ELASTIC LIGATURE.

As the result of a series of experiments, MURPHY (*Boston Medical and Surgical Journal,* Jan. 28, 1904) concludes, among other things, that a successful anastomosis between the stomach and intestines is possible by means of the elastic ligature. The method, however, is not applicable when an immediate opening is desired.

The simple technique as described by McGraw is adequate and satisfactory. Any elaboration of the technique must reduce the usefulness, since it reduces the speed. Prolongation of operation adds to the shock and increases the liability of infection. As to the supporting sutures, a posterior continuous possesses the advantage of more rapid application; but anteriorly and at the ends an interrupted stitch would seem to be preferable. On animals it was not demonstrated that a continuous anterior stitch tended to contract the opening, even though it is applied after the jejunum has become wrinkled; such is also the case on the human cadaver. In tying the ligature, care should be taken not to include the posterior suture within the loop. Since it was possible, during the experiments, to include 5 centimeters of the wall of the small intestine of a cat, the larger human bowel will permit of the formation of an opening up to any size which may be required to sidetrack the stomach contents.

The time of the cut-out varies, depending upon the character of the ligature, the

method of application, and the resistance of the tissues in any given case; but the ligature will ultimately cut out. The rapidity of the cut-out is hastened by a knot at either end of the elastic loop. The pinching of the gut by the ligature appears to cause no bad symptoms. The serous surface of the outside of the joint when completed is smooth.

The procedure causes a minimum operative risk, both as regards shock and infection.

Adhesions across the opening are a possible but not a probable complication.

Extending these conclusions to practical operative work, it is believed that in cases in which an immediate opening of the bowel is not imperative, and in which the avoidance of operative shock is an important factor, the elastic ligature method may prove to be the operation of choice, in gastroenterostomy and lateral anastomosis.

SEROUS EFFUSIONS TREATED BY INJECTIONS OF ADRENALIN.

BARR (quoted in the *Cleveland Medical Journal,* June, 1904) describes a new method of treating serous effusions. With the object of lessening secretion, he injected one fluidrachm of adrenalin chloride solution 1 to 1000 into the pleural cavity, after the aspiration of a large quantity of blood serum, in a case of abdominal cancer extending to the pleura. There was no further secretion, consequently no further tapping, and the patient spent the remainder of her life in comfort so far as her chest was concerned.

This treatment was extended to cases of ascites, due to hepatic cirrhosis, in which marked results were not expected. However, the rapidity of secretion was diminished, and no ill effects were noted; the quantity of adrenalin solution used in ascites varying from two to three fluidrachms of the 1-to-1000 solution.

In a case of pericarditis with effusion, in a lad, 19 fluidounces of serum was withdrawn from the pericardium, but a reaccumulation rapidly followed. The patient's condition becoming critical, the paracentesis was repeated, 20 ounces of fluid being withdrawn, with immediate improvement in the quality of the pulse. Forty minims of solution adrenalin chloride 1:1000 was injected into the pericardium. The pulse at the wrist disappeared. The countenance assumed an ashy, leaden hue, and the expression became anxious. Immediately nitroglycerin and atropine were administered, and the boy quickly rallied. No further tapping was required. The same patient had a subsequent attack of pleurisy with effusion. Ten fluidounces of serum was withdrawn from the chest, and one fluidrachm of the adrenalin chloride solution was injected. There was no reaccumulation.

In a case of tuberculous peritonitis and ascites, 200 fluidounces of serum was drawn and two fluidrachms of 1-to-1000 solution adrenalin chloride introduced into the peritoneal cavity, with four pints of aseptic air (the later to prevent adhesions). Thirteen days later, 237 fluidounces of serum was withdrawn, and two fluidrachms of the adrenalin chloride solution and two pints of air were injected. Upon a third occasion, eleven days later, 196 fluidounces of serum was obtained by tapping, and three fluidrachms of adrenalin solution and four pints of sterile air were injected. No reaccumulation of fluid occurred.

One pint of fluid was withdrawn from the pleural cavity of a female child seven years of age, and one fluidrachm of adrenalin chloride solution 1-to-1000 and half a pint of sterile air were injected. Though it was highly probable that the pleurisy was tuberculous, there was no reaccumulation of fluid and the patient recovered.

CORNEAL SCARS TREATED BY SCRAPING.

HOLMSTROM (quoted in the *Ophthalmic Record,* May, 1904) advises the scraping of corneal scars where they are superficial and have irregular, uneven surfaces, which often interfere more with vision than comparatively dense scars with smooth surfaces. The surface of the cornea is scraped with a small, sharp spoon until it is freed from the opacities and appears even. The surface usually becomes covered with epithelium within forty-eight hours, and the initial irritation soon subsides. A new opacity appears, which must be treated for a long time

with warm applications, etc., so that the cornea may clear up and be as smooth as possible. The writer has operated in this way on twenty cases, and believes the method should be reserved for patients in whom good results cannot be obtained by other treatment.

SYPHILIS DURING PREGNANCY—SPECIFIC VAGINAL TREATMENT.

The results of treating pregnant syphilitic women by mercurialized vaginal suppositories, according to Vörner's method, described in the *Journal of the American Medical Association* of June 11, 1904, show a favorable influence of this specific on the course of the pregnancy, and the morbidity of mothers and children, when the latter receive breast milk, and suitable care after birth, with specific symptomatic treatment.

The suppository is composed of equal parts of lard and mutton tallow, with 12 to 15 per cent mercury, a total of 3 to 5 grammes. It is introduced into the vagina and pressed against the mouth of the uterus by a tampon. The tampon must be non-absorbent, and is therefore impregnated with either tannin and glycerin or alum and glycerin.

Where the conditions are favorable the vaginal method may be applied with good prospect of success, but where they are not the most that can be hoped for is to bring the woman to a normal termination of pregnancy. Neglected and poorly nourished children succumb in about the same proportion as do similar children of untreated mothers.

THE LYMPHATICS OF THE LARYNX AND THEIR RELATION TO MALIGNANT DISEASE OF THAT ORGAN.

Krishaber divided cases of malignant disease of the larynx into two classes, those of *intrinsic* and those of *extrinsic* origin. He applied the term intrinsic to those cases in which the primary site of origin was the true or false vocal cords, the ventricles, or the parts immediately below the true vocal cords (subglottic); and the term extrinsic to tumors arising in connection with the epiglottis, arytenoepiglottic folds, interarytenoid space, etc. This classification has a pathological and clinical basis.

De Santi (*Lancet*, June 18, 1904) states that so long as malignant disease is limited to the interior of the larynx (intrinsic) glandular infecton is rare, but if the external parts of the larynx (extrinsic) be affected early glandular infection is the rule.

Extrinsic carcinomata all tend to spread toward the upper opening of the larynx and the lateral parts of the pharyngolaryngeal region. This progress is rapid and sure when the epiglottis or arytenoepiglottic folds are primarily attacked. Although extrinsic carcinoma reaches the final stage of its evolution by invading the extra-laryngeal parts, it is particularly at the level of the posterior aspect of the thyrohyoid membrane that it is liable to show itself externally—*i.e.*, to ulcerate through. Extrinsic carcinoma tends to become arrested for some time in its growth downward by the true vocal cords.

Intrinsic carcinoma attacks most frequently the true vocal cords (29 out of 117 cases, Baratoux; 15 out of 55, Fraenkel, Semon), next in frequency the superior or false vocal cords, and least frequently the subglottic region. Carcinoma of the true vocal cords is conspicuous by virtue of its slow evolution. It tends to spread at first toward the opposite vocal cord, and later to the supraglottic region. Similarly when the superior vocal cords are attacked, extension is toward the supraglottic region.

Subglottic carcinomata are rare; out of 486 cases Sendziak collected only 5. They tend to spread downward and invade the trachea. Their growth upward is usually checked by the true vocal cords. With the exception of malignant disease originating in the epiglottis or arytenoid region, the disease tends to remain limited in the beginning to one-half of the larynx. Sooner or later, however, the neoplasm tends to attack the opposite side. A few cases have been reported in which the opposite side has become affected by contact, but usually it is by direct continuity of structure. This most often occurs at the level of the posterior aspect of the larynx, although it has been observed to invade the opposite cord through the anterior commissure.

Like all epitheliomata, cancer of the larynx tends eventually to invade the

lymphatic glands; this being the rule in late cases. Schleier has noticed it 20 times out of 125 cases, and Sendziak noted 54 cases out of 486. Other observers give a much higher percentage—Juraz 9 out of 21, and Schwartz 13 out of 28 cases. Nevertheless, lymphatic infection is rather rare, if the growth be limited to the true or false vocal cords, particularly to the anterior two-thirds of the true cords. It is also uncommon in cases of subglottic origin. On the other hand, enlargement of the glands in a case of epithelioma of the larynx may be due simply to inflammatory infection from a septic malignant ulcer or to some lesion of the pharynx.

In cases of epithelioma of the epiglottis and arytenoepiglottic folds very early glandular infection is the rule. Anatomically infection would be expected to show itself in three groups of glands—the substernomastoid, the prelaryngotracheal, and the recurrent laryngeal. As a matter of fact all the glands included between the posterior belly of the digastric and the clavicle may become infected in cases of laryngeal cancer. There is nothing characteristic in their mode of invasion. Infection of the prelaryngotracheal glands is decidedly rare. Similarly only a few cases are on record of infection of the recurrent group. In all, the verification has been post mortem, as malignant disease of these glands owing to their small size and depth cannot be recognized clinically. The order in which the glands become infected varies according to the site of origin of the growth. If of extrinsic origin it is particularly likely to occur in the upper group of glands of the sternomastoid chain, and if of subglottic origin in the lower group. As a rule the gland which is first found to be enlarged, and that is most often met with in intrinsic carcinoma, is placed at the level of the anterior border of the sternomastoid muscle about the height of the space which separates the hyoid bone from the thyroid cartilage. So long as the disease remains limited to one-half of the larynx, glandular infection occurs only on the affected side. When, however, cancer attacks the mid-portions of the epiglottis or cricoid plate, glandular infection on both sides of the neck may occur.

If an epithelioma of the larynx of strictly intrinsic origin is seen and diagnosed in an early stage, and whilst therefore it is of limited origin, the operation of thyrotomy is amply sufficient to eradicate the disease. In the absence of obvious glandular involvement experience has shown that there is no need for an elaborately formidable operation to remove the group of glands liable to infection. Semons performed thyrotomy on twelve patients. Ten of these twelve patients have been completely and permanently cured—a percentage amounting to 83.3. In none of these cases was it deemed necessary to extirpate any glands. On the other hand, in much advanced cases of intrinsic cancer of the larynx which necessitate removal of one-half the larynx, the corresponding glands should be removed whether they are felt to be enlarged or not. Also in any given case of extrinsic origin, bearing in mind the certainty of early involvement of the glands, a formidable operation for their removal, whether enlarged or not, should always be the routine practice.

HOUR-GLASS CONTRACTION OF THE UTERUS.

RENDELL (*Lancet,* June 18, 1904) reports seven cases of hour-glass contraction of the uterus. The condition is one of uterine inertia both above and below the contraction ring.

In none of the seven cases did the placenta show any signs of morbid degeneration, nor was the cord attachment abnormal. Chloroform neither prevented nor relaxed the uterine contracting band below the placental site.

It is often difficult to disengage the finger-tips from the placenta and its membranes (which fall over the fingers like a loose glove after the contraction has been overcome); but when the fingers are completely disengaged, it is found that there is plenty of room beyond the contraction in the upper inert uterine segment.

In two cases obvious uterine inertia necessitated forceps delivery. If hour-glass contraction supervenes after delivery, while the patient is still in the left lateral obstetric position, the fundus will be found high up in the left hypochondriac region, where it can be felt indis-

tinctly, in marked contrast to the customary "cocoanut" hardness of the normally contracted uterus. If the placenta is not extracted promptly the uterine cavity persists as two large flaccid bags filled with clots, and oozing continues from the placental site. In only one case was there undue postpartum hemorrhage. The danger to the mother's life is considerable from retention and decomposition of clots, if not always immediate from hemorrhage.

Prophylactic treatment consists of kneading the uterus after delivery until it is firmly contracted. If hour-glass contraction should supervene, manual extraction of the after-birth must be performed. Unless contraindicated, chloroform should be given to relieve pain.

ILEOCÆCAL TUBERCULOUS TUMORS.

According to Conrath, the ileocæcal region is the seat of election of intestinal tuberculosis, and is affected in 85 per cent of all cases. D. EPSTEIN (quoted in the *British Medical Journal*, May 7, 1904) states that tuberculosis of the cæcum may occur in two forms. There may be tuberculous ulcers, which, as in other parts of the intestinal tract, may heal and be followed by stenosis, or may advance to perforation.

In the form which is less generally recognized the tuberculous infiltration of the cæcum results in the formation of a tumor (tumor ileocæcalis tuberculosis). The walls of the cæcum are thickened at the expense of its lumen, which is almost always narrowed, and may be impermeable. The morbid process consists in the formation of fibrous tissue, in which are embedded scattered tubercles. These may occur in the mucosa, submucosa, or subperitoneal tissue, or in all three layers simultaneously. The subserous form is commonest in children, and is due to direct infection from tuberculous mesenteric glands. The tubercles contain but few bacilli, and have little tendency to break down. Hence the process usually remains localized and the lungs are seldom extensively diseased.

The writer has collected eighty-two cases of tuberculous ileocæcal tumor. The youngest patient was twelve, and the oldest sixty; most cases occurred in the second, third, and fourth decades. The progress of the disease is as follows: The general health fails, and there are anorexia, dyspepsia, and disinclination for mental or physical exertion. At first local signs are absent, or consist at most of vague sensations of fulness in the ileocæcal region. But soon there appear symptoms of obstruction. There are usually severe attacks of colic, which occur chiefly after eating, constipation in the beginning may alternate with diarrhea, but finally becomes more pronounced, until the bowels never act except after enemata. The patient becomes emaciated, weak, and cachectic. There is an ill-defined sausage-shaped swelling in the iliac fossa (or in advanced cases an obvious solid tumor), which is more freely movable laterally than vertically, and retains the typical shape of the cæcum. Occasionally during an attack of colic a coil of intestine may be seen and felt through the thin abdominal walls. This is the lower end of the dilated and hypertrophied ileum in a state of active peristalsis. It is situated above and to the inner side of the cæcum, and is perceptible as long as the attack of colic lasts. Finally a hissing, splashing, or musical sound may be audible, and the coil disappears from view. This phenomenon is said to be due to the passage of air and liquid through the obstruction situated at the ileocæcal valve. Tubercle bacilli may be found in the feces. Their diagnostic value is disputed.

The writer reports a case which is typical in every detail except the age of the patient. A girl aged five and a half years had suffered from vague abdominal pains since two years old. Emaciation and colic appeared, and the pain became localized in the cæcal region. There was a tumor of the size of a goose egg in the position of the cæcum, and obstinate constipation. The temperature was normal and the lungs not affected. Laparotomy was performed. The ileum was found greatly distended. The cæcum and lower part of the ascending colon were thickened and embedded in adhesions, and their peritoneal coat was studded with tubercles. There was stenosis of the ileocæcal valve. Owing to adhesions, resection of the cæcum was impracticable, therefore enteroanastomosis between the

ileum and the transverse colon was performed. Ten months later the child was in splendid health, and had gained 22 pounds in weight. The bowels acted normally, though the tumor was still palpable in the right iliac fossa.

PRIMARY MUSCULAR TUBERCULOSIS.

LEJARS (*Medical Press,* June 22, 1904) reports a case of muscular tuberculosis with multiple distribution, in a consumptive aged fifty-three years. Five months before coming under observation the patient noticed the appearance, apparently causeless, of a small, hard induration, on the anterosuperior surface of the right thigh, which rapidly increased to the size of a child's head and then remained stationary. About the same time a similar small localized induration appeared on the upper inner side of the left thigh, but this did not enlarge. Ten days later a third nodule on the upper and outer surface of the right forearm made its appearance and grew rapidly to the size of an apple, then softened, and the skin became red. A fortnight later a fourth nodule appeared on the posterior surface of the lower third of the left arm, which soon attained the size of an egg, causing some pain and functional disturbance.

On examination the tumors were found to present the same general characteristics. They were not adherent either to the skin or to the subjacent bone. They were manifestly intramuscular, movable, situated transversely, and became harder and fixed when the muscle was made to contract. The tumor on the right thigh, which measured ten centimeters in length and six in width, had undergone softening, and obscure fluctuation was noted with the muscle relaxed; that on the right forearm was prominent, ovoid in shape, and covered with reddened skin, not, however, adherent. It appeared to be embedded in the mass of the long supinator muscle, and was clearly fluctuating. That in the left arm was hard, of somewhat irregular outline, and moved upward and downward with the contraction of the triceps brachialis. A nodule in the left thigh the size of the thumb, elongated and hard, followed the course of the internal rectus, with which it was identified. The intramuscular distribution, the consistence, the slow evolution, and the concomitant tubercular condition of the lungs suggested at once the diagnosis of multiple muscular tuberculosis.

All these tubercles were extirpated *en bloc,* and each of them was found embedded in muscle and covered by the aponeurosis, which was still intact. The wounds all healed without complication. The bacteriological and histological examination confirmed the diagnosis.

Muscular tuberculosis is now established on sufficiently trustworthy data to possess more or less definite clinical and anatomicopathological characteristics. Three varieties are usually described, the tuberculoma, the cold abscess, and the tuberculous infiltration. The first two represent the normal evolution of the tuberculous nodule, at first "crude," hard, and compact, then undergoing softening and abscess formation; the third, of much rarer occurrence, manifests a remarkable tendency to confluence of the nodules, which ultimately invade the muscle extensively, or it may be entirely. Here, again, there are consecutive stages and intermediate varieties, and alongside this infiltration *en masse* may be placed the form of tuberculosis with large, multiple, confluent nodules. In one of the writer's cases the entire suprapatellar region, for a distance of five fingerbreadths, was strewn with nodules the size of a hazelnut, an olive, or a pea, rounded or ovoid in shape, which underwent hardening, fixation, and became less perceptible when the muscle was contracted. At operation it was found that the muscle substance was permeated by nodules, some hard, yellow, and crude, others softened and caseous.

Muscular tuberculosis comprises lesions of the large connective tissue spaces of the muscle fiber. First of all the connective tissue is invaded, with the formation of small cavities; then the muscle bundle; and finally there occurs transformation of the muscle fiber proper.

The monomuscular tumor and cold abscess are the most common forms of muscular tuberculosis. They must be differentiated from hydatid cyst, sarcoma, fibrosarcoma, lipoma, syphilitic gumma, old suppurating hematoma, and post-typhoidal muscular abscess.

In multiple lesions of muscular tuberculosis the multiplicity of the tumors constitutes an important element in the diagnosis. Moreover, the variable consistence of the different nodules, the softening and fluctuation of some, the resistance and firm irregular surface of others, afford data which will assist greatly in the diagnosis. If required, exploratory puncture of one of the fluctuating nodules will decide the diagnosis.

The so-called "*primary* muscular tubercles" probably do not exist. An initial focus of tuberculosis "elsewhere" must be sought.

Recorded observations teach that the muscular lesions whether single or multiple should always be excised *en bloc,* at the expense of muscular tissue. Curetting is condemned.

SUBCONJUNCTIVAL DERMOLIPOMATA.

JOHNSTON (*Ophthalmic Record,* May, 1904) states that dermolipomata resemble dermoid tumors, owing to the presence within their structure of certain cutaneous elements such as papillæ, epithelial inshoots, hair follicles, sebaceous glands, and blood-vessels. They partake also of the nature of lipomata in that they contain a certain amount of fatty tissue.

Dermolipomata are always congenital. They may not, however, be detected at birth, since they usually occur on the upper and outer part of the eyeball, between the external and superior recti muscles, where they may remain hidden by the upper lid. They occur most frequently in women. When found in advanced age they have considerably increased in size. The small tumor gives no trouble. The usual location is the superior fornix. Panas saw one at the internal part of the inferior cul-de-sac.

The size varies from that of a pea to a small almond. The tumor is single. The color is generally yellow, sometimes faintly reddish. It is not rare to find pearly-white plaques, representing the remains of the epidermis. In the mass of the neoplasm are found epidermic elements, usually rudimentary. It is rare to find on the surface of dermolipomata, hairs visible to the naked eye, as in corneal dermoid. The growths are seldom noticed at birth, but attention may be called to them by an accompanying congenital anomaly, as coloboma, cataract, etc. In pure lipomata the conjunctiva is not adherent to the growth, but slips over it, so that by cutting through the mucous membrane the tumor can be removed *in toto.* In dermolipomata the conjunctiva is intimately adherent to the growth and must be removed with the tumor.

DECAPSULATION OF THE KIDNEYS.

A series of eight cases of decapsulation of the kidneys reported by HUBBARD (*Boston Medical and Surgical Journal,* Jan. 28, 1904) presents results worthy of attention.

None of them can be said to be cured, as not one of them has a urine free from albumin. One is, however, without subjective symptoms or urinary sediment, a year and four months after operation, and another seven months after operation, though lost sight of since. Of the remaining five, one, somewhat improved, died six months after operation, of tuberculosis. The remaining four died, unimproved, two days, nineteen days, one month, and three months after operation respectively.

In regard to the case which has still albumin but no casts in the urine, Edebohls says that the albumin may persist for some time after the casts have entirely disappeared in the cases that are finally cured.

LIGATURE OF THE LATERAL SINUS IN FORMIDABLE OPERATIONS ON THE NECK.

LAMBOTTE (quoted in *Indian Medical Record,* May 18, 1904) reports a case in which as a hemostatic precaution before the removal of a large ulcerating cancer of the parotid he ligated the lateral sinus, midway between the occipital protuberance and the mastoid process, after exposing it by means of the trephine. There was very little hemorrhage during the operation, although the internal jugular vein was freely torn. The patient recovered from the immediate effects of the operation, but died of secondary arterial hemorrhage on the twentieth day.

Preliminary ligation of the lateral sinus may prove serviceable before extensive operations on the side of the neck.

CURVATURE OF THE SPINE—FORCIBLE CORRECTION.

After a discussion of the various methods employed for correction of lateral curvature of the spine, LOVETT (*Boston Medical and Surgical Journal,* March 17, 1904) reaches the conclusion that the best chance of improvement in cases of severe scoliosis lies, first, in using severe force to secure an improved and, if possible, overcorrected position, and secondly, in retaining as much as possible of the position thus secured during at least part of the growing period.

As a result of a number of experiments conducted to determine the practicability of this purpose the conclusions were: (1) Extension of the spine by an upward pull on the head is a corrective force in scoliosis, but much more force than this affords is required to accomplish a maximum amount of side correction. (2) To secure the maximum of side displacement from a given amount of side pressure, the spine must not be stretched to its full length. (3) To maintain the desirable position, during growth, overcorrection of the existing deformity should be secured when possible. It is obvious that to secure this the use of great force is necessary. When the improved position is obtained, every effort should be made to retain it by means of portative apparatus and gymnastic exercises.

The corrective apparatus devised by the author aims to keep the two corrective elements apart—in other words, to correct first the side curve, and then by a forward or back pressure to correct the rotation while the side correction is maintained. Either can be used alone, and the relative forces of each regulated.

The apparatus devised by Lovett consists of a heavy gas-pipe frame three by four feet. The patient lies face downward on two webbing strips running from end to end of the frame, with the legs flexed. Near the bottom of the frame is an adjustable cross-bar bent to fit into the flexure between the thigh and the pelvis, on which the patient rests the lower part of the body. Sliding on this bar are two arms, which fit and clamp down on the buttocks, holding the pelvis steady on the cross-bar. This bar is movable from side to side in order to induce or correct curvature in the lumbar region when necessary. There are three vertical transverse rings two feet in diameter fastened to pieces on the sides of the frame so that they can be moved to any desired point along the frame. These rings are also movable from side to side, and by an independent movement they can be rotated through a half circle. Any one of these movements can be checked at any point by turning a screw. The shoulders are held by a pair of axillary straps fastened together by a strap across the chest in front. These straps are suspended from the ring nearest the top of the frame, and can be made to hold the shoulders in any desired degree of twist by a rotation of the ring.

Each ring is provided with two long screws at the two poles of the ring. These screws are adjustable upon the ring and can be set at any desired angle to it. By rotating the ring and adjusting the angle of the screws they can be made to screw down or up upon any part of the back or chest.

For the application of the jacket the patient lies on the face on the two webbing strips, the lower part of the trunk resting on the cross-rod and the bars clamping the buttocks; the feet rest on the floor and the arms are extended above the head. The rings are then adjusted at the two levels where it is desired to make correction, generally in the dorso-lumbar and the dorsal regions. For side correction a bandage is fastened to one side of the ring, carried around the patient's side over a heavy pad of felt and back to the ring. The same is done to the other ring at the other level where side correction is desired, while the top ring controls the shoulders. The rings are then pulled to one side, the bandages around the patient tighten, and any endurable degree of side correction obtained.

When the side correction is made the ring is rotated till the screws are opposite the points where it is desired to correct rotation. They are then screwed down on to the patient, their points being protected by sheet-iron pads two by three inches, which are covered with heavy felt. These pads are incorporated in the jacket.

The shoulders are controlled by the axillary pads attached to the upper ring along with screw pressure up or down as

desired. In the correction each level is separately attacked.

The pelvis is always held firmly and cannot rotate. If two curves exist, correction of the lower curve is first attempted—first by side force, then by rotation force. Next the dorsal curve is attacked and corrected to square with the pelvis. The shoulders are finally inspected, pulled to one side if necessary, and twisted into a position parallel to the pelvis. A plaster jacket is applied in this position.

Separate correction in two planes may be made at any level while the pelvis is firmly held, and correction at one place may be made independently of correction at any other place, and either side deviation or rotation or both may be corrected at each level.

In the third case in which the apparatus was used, a child six years old with a very severe curve from infantile paralysis was corrected. The deformity yielded readily without much pain and almost wholly disappeared; a jacket was applied; ether was not used. The child showed signs of collapse in the night, and the next morning its condition was alarming. The jacket was split, and the alarming signs disappeared.

In the cases in which this frame has been used it has seemed to have very great corrective power, and great power is needed if overcorrection is to be obtained, which, just as in clubfoot, is the desideratum.

Such corrective jackets are worn for a period of two or three weeks and changed once or twice, as further correction seems obtainable by another jacket. The last corrective jacket when removed is used as a mold for a plaster torso, and a leather or celluloid or other retentive corset constructed from it. This is worn day and night, and only removed once a day for heavy corrective gymnastic work, which is pushed to the limit of the patient's capacity.

Such retentive apparatus, whatever it is, should aim at holding the patient in an overcorrected position, or as near it as possible, from the pelvis to the base of the skull.

It is not intended to dwell on braces or corsets, but rather on the essentials of the method. A useful brace, however, for out-patient work is found in a leather corset stiffened by bayberry tallow, with a window for pressure from a leather pad on the convexity, the point of counterpressure being offered by an iron bar and two pads, one over the pelvis and one in the axilla, on the other side of the jacket. It is essential that room be given on the side away from the pressure for the patient to be pulled over, and this is arranged by cutting out part of the side of the jacket on the side of the concavity of the curve and pulling by straps on the pad set in the window over the convexity. Jackets may be gradually discontinued in all but the extreme paralytic cases after a period of perhaps two years.

Reviews.

DISEASES OF THE STOMACH AND INTESTINES. By Boardman Reed, M.D.
New York: E. B. Treat & Co., 1904.

There is a real need for such books as the one Dr. Reed has given us.

The scientific diagnosis of diseases of the gastrointestinal tract is confined too much to the specialist, and yet no organ or set of organs furnish as much work for the general practitioner as do diseases of the stomach and intestines. A working knowledge of the methods of diagnosis in such conditions is of as much importance to the average physician as a knowledge of the physical diagnosis of the heart and lungs.

Dr. Reed has had as his aim the production of an unpretentious but approximately complete guide to the clinical diagnosis and treatment of gastrointestinal diseases. He has chosen to present his material in the form of short clinical lectures which are arranged in three main divisions. The first includes anatomy, physiology, and general diagnostic data; the second comprises the methods of examinations; the third methods of treatment; and the fourth the gastrointestinal clinic.

In the section upon methods of diagnosis, the author takes up the examination of the motility and secretion of the stomach and the determination of its shape and size. The description of the technique of passing the stomach-tube is very well

done, and many practical points are given that are not usually found in our textbooks.

Dr. Reed is very happy in his remarks upon the value of the usual test meal in determining the secretory power of the gastric mucous membrane. We are all apt to forget that while a breakfast of tea and bread may give quite a satisfactory idea of the secretion of a German stomach, it is probably misleading when used to test an American stomach, that is accustomed to a much heavier morning meal.

The section upon general treatment is concise, and upon the whole very satisfactory. In it he considers the general hygiene of eating and drinking and the various diets of health and disease, the therapeutic agents other than drugs, such as massage, electricity, and hydrotherapy, and the pharmacology of gastric diseases.

Dr. Reed is found among those clinicians advocating a carbohydrate and fat diet in hyperchlorhydria, as he has been convinced by his own experience that better results are obtained by such a diet than by one containing an excess of albumin.

His remarks upon the danger of very restricted diet are well put, and should carry conviction in this important matter.

Dr. Reed warns us against a too enthusiastic employment of lavage, and practically restricts its routine use to cases of marked retention or chronic gastritis.

He takes issue with the present lack of faith in electricity as a remedy in gastric diseases, and is firmly convinced that intragastric faradism is extremely valuable in the treatment of gastric atony and neurosis. He gives an elaborate description of the technique of its administration.

The last section considers the various diseases of the stomach and intestines in order, and does not depart to any considerable extent from the lines usually followed in such a treatise.

The articles upon Gastric Ulcer, Chronic Gastritis, Mucomembranous Colitis, and Gastrointestinal Syphilis are particularly good.

As a whole the book may be said to conform to the author's purpose of presenting a clinical handbook for the general practitioner, and as such it can be heartily recommended.

If any criticism is to be made, it is that Dr. Reed quotes verbatim too fully from other authorities and from his own previous papers. This rather detracts from the conciseness of the work, and makes one wish that Dr. Reed had utilized his own large experience to a greater extent in digesting this foreign material and stamping it with his own individuality. As it is, we miss somewhat the personal element that is so great an advantage in the monograph as compared with composite textbooks. J. D. S.

A Treatise on Bright's Disease and Diabetes. With Special Reference to Pathology and Therapeutics. By James Tyson, M.D. Second Edition. Illustrated.
Philadelphia: P. Blakiston's Son & Co., 1904.

Dr. Tyson's name and life-work have been so intimately associated with the study of Bright's disease and diabetes that anything which he writes at this time upon these subjects must be taken as authoritative and deserving of careful study. It is twenty-three years since the first edition of this work appeared, and it can therefore be readily understood that the contents of the present edition resemble but little the contents of its predecessor. The changes which have taken place in our conception of the pathology of diabetes and renal disease are very great, and it is fortunate that Dr. Tyson, who has kept himself in touch with all these advances, is able at this time with his increased experience to discuss once more these important subjects. Since the appearance of the first edition our knowledge of the relationship of the blood-vessels of the eye to the cardiac and renal changes of these two diseases has been greatly amplified, and Dr. Tyson has called to his assistance in the discussion of these important matters the skilful pen of Dr. de Schweinitz, the Professor of Ophthalmology in the University of Pennsylvania, who has done as much as any one in this country to investigate these interesting relationships.

The first part of the book is devoted to the consideration of Bright's disease. After discussing the anatomy of the kidneys, the tests for albumin and the causes and sources of albuminuria, the author proceeds to a consideration of casts, then to a classification of the various forms of Bright's disease, and then to a considera-

tion of each individual form. He divides his subject into four parts: acute parenchymatous nephritis, chronic diffuse nephritis, acute interstitial, and chronic interstitial nephritis. We are glad to see that he emphasizes the importance of the chronic diffuse form. While it is true that in clinical medicine we meet with cases in which the parenchyma or the connective tissue is chiefly involved, it is also a fact that many patients present symptoms which clearly indicate that their condition does not belong to either one of these old-time classifications, but to a combination of both of them. Thus we see cases in which parenchymatous change has undoubtedly taken place, yet in which the patient lives for a number of years, surviving almost as long as do many cases of pure interstitial nephritis, and not coming to death with anything like the rapidity with which cases of pure parenchymatous nephritis come to their end.

In the part of the book which is devoted to diabetes, and which consumes about one-third of its pages, the various theories of the causation of this malady are discussed, and the reader is provided with a careful summary of our present knowledge in regard to this important subject. Such a summary is of peculiar value in view of the immense literature which has accumulated concerning the physiology of the carbohydrates.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN FOR THE USE OF STUDENTS AND PRACTITIONERS. By James Nevins Hyde, A.M., M.D., and Frank H. Montgomery, M.D. Seventh and Revised Edition. Illustrated with 107 engravings and 34 plates in colors.
Philadelphia and New York: Lea Bros. & Co.

The present edition of Hyde and Montgomery's text-book on skin diseases is a handsome volume of 938 pages. The authors have introduced new chapters upon a half-dozen or more rare dermatoses which have in the past few years acquired sufficient importance to warrant their recognition and description. The technique and value of the Finsen light and x-rays are discussed in a manner that evidences the experience and mature judgment of the authors. Their pronouncement upon the value of x-rays in psoriasis is of interest. Seventy cases were treated by this method with gratifying results in general. "Recurrences are apparently somewhat less frequent than after other local treatments, and as a rule recurrent lesions disappear much more promptly under the treatment than do original patches." An amount of space is devoted to radiotherapy and actinotherapy commensurate with their growing importance in dermatology.

The claim made in the chapter on variola that the lesions of smallpox pursue a milder course under the internal use of sodium hyposulphite is not borne out by extended experience. There is no known internal remedy which modifies the course of the variolous eruption. An unfortunate error is to be noted in the article on varicella. The authors quote Councilman and his associates as claiming that the parasite of varicella is that of variola, which completes, however, but a single cycle of its life history. The authors have, obviously through oversight, confused varicella with vaccinia.

The article on blastomycosis gives an excellent exposition of the subject: it condenses much valuable material into eight pages of text.

The attitude of the authors on mooted questions in the etiology of cutaneous diseases is extremely conservative. The pathology of the various affections is excellently presented without devoting to this phase of the subject disproportionate space.

The authors have put forth a work which reflects credit upon American dermatology, and which is in reality what it was designed to be, "a trustworthy exponent of the science and practice of dermatology in its most advanced state at the date of issue."

The distinguished authors have an international reputation in their chosen field, and the book will doubtless receive, as have the previous editions, an appreciative welcome here and abroad.

J. F. S.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY FOR STUDENTS OF MEDICINE. By Winfield S. Hall, Ph.D., M.D. Illustrated.
Philadelphia and New York: Lea Brothers & Co., 1904.

Teachers of physiology will undoubtedly welcome this excellent little volume of 250 pages. It is, to use a term more descriptive than elegant, "full of meat" from cover to cover. Its opening chap-

ters deal with the simplest forms of plant life, and with the experiments which may be made upon protozoa and other microorganisms in the early stages of physiological study. This is followed by an excellent chapter upon the general physiology of nerve and muscle, and this in turn by others upon the circulation of the blood, respiration, hematology, digestion, vision, and the physiology of the nervous and muscular system. An appendix contains formulæ and information which will enable the demonstrator and student to get together the necessary apparatus for the experiments which have been described in the earlier part of the volume. Even to general practitioners this book will prove interesting reading. It will refresh their minds in regard to many important physiological facts without requiring that they should read many pages to obtain the gist of a subject, and furthermore it will teach those who are so inclined how to make experiments with many of the drugs which are used in daily practice whereby their physiological action can be accurately studied, and their activities tested, if it is so desired. Dr. Hall's book is a model of what such books should be, and clearly shows the fact that it is based upon a large experience in teaching students.

DISORDERS OF METABOLISM AND NUTRITION. By Prof. Dr. Carl von Noorden and Dr. Carl Daffer. Price 75 cents.
New York: E. B. Treat & Co., 1904.

We have already noticed in earlier reviews several other numbers of this excellent series. The present one deals not with obesity or diabetes, but with the influence of saline waters, more particularly with that of Kissingen water, upon metabolism. The first chapter deals with the influences of saline mineral waters in gastric secretion in health and disease; the second with their effect upon the absorption of food, with special reference to the digestion of food; the third upon their influence with metabolism of proteids; the fourth is upon their effect upon the excretion of uric acid; and the fifth deals with the use of fruits, salads, vinegar, etc., in the course of the "water cure." This clearly indicates the scope of the work. The volume is a small octavo of less than 100 pages, and forms a ready reference book upon the subject with which it deals, while the high standing of Professor von Noorden in this department of medicine guarantees that the statements which it contains are accurate.

CLINICAL UROLOGY. By Alfred C. Croftan, M.D. Illustrated.
New York: William Wood & Co., 1904.

Dr. Croftan's name is favorably known because of the interesting researches which he has made in respect to human metabolism. The present book is intended, as its name implies, to be a treatise on the urinary aspects of disease, and is not meant as a mere laboratory guide to the analysis of urine. Dr. Croftan attempts to provide a volume which lies between the laboratory on the one hand and the clinic on the other. His discussions, therefore, of such subjects as albuminuria, urea elimination, acetone bodies in the urine, etc., etc., do not only include tests for these substances but a discussion of their physiological, pathological, and clinical significance. For this reason the book is of value to all those who are interested in a discussion of this rather difficult side of medical study, for while, on the other hand, an immense amount of research has been carried on in regard to the physiological and pathological processes of metabolism, in one sense we are sadly lacking in our knowledge of the exact relationship of these processes to health and disease. The purchaser of this volume will, therefore, be possessed not only of a good guide to urinary analysis, but of the most recent information in regard to those bodies which are eliminated in the urine, and which before their elimination sometimes cause symptoms of interest or gravity.

A HANDBOOK OF PATHOLOGICAL ANATOMY AND HISTOLOGY. By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Seventh Edition. Copiously illustrated.
New York: William Wood & Co., 1904.

Since the appearance of the first edition of this standard work upon this subject it has always been marked by the evidences of practical clinical medicine as well as experience in the autopsy-room. Indeed, it has often seemed to us that its title was faulty in that it should be called a handbook of pathology, or morbid physiology, since a large amount of the information which its pages present to us consists in descriptions of pathological

changes taking place during life rather than those which are met with after death. While the book opens with a consideration of the method of making autopsies which is eminently satisfactory, the greater part of its space is devoted to a consideration of the individual forms of disease. Thus the chapters on the infectious diseases, while they are of course chiefly devoted to pathology and morbid anatomy, might almost be taken for chapters in a book upon the practice of medicine. Dr. Delafield, we are told, no longer shares in the preparation of the work, and therefore all the new material as well as a great part of the old is contributed by Dr. Prudden, than whom no one is more capable and competent. In addition to careful revision of the entire volume a new chapter has been written on the subject of immunity. Ehrlich's side-chain hypothesis has been carefully discussed, and much information is given in regard to the various types of cytolysis. The illustrations are exceedingly numerous, no less than 545 being found in the 839 pages of text.

As may be gathered from what we have already stated, the present edition is a most valuable one not only to the laboratory worker but to the general practitioner as well, who can only obtain clear conceptions as to treatment by having before him a good mental picture of the pathological process which is present in his patient.

SERUMS, VACCINES, AND TOXINS IN TREATMENT AND DIAGNOSIS. By W. C. Bosanquet, M.A., M.D., F.R.C.P. Price $2.50.
Chicago: W. T. Keener & Co., 1904.

In a small octavo volume of 340 pages Dr. Bosanquet has succeeded in presenting to us a very complete summary of these comparatively new subjects in medicine. The volume is welcome because it is, so far as we know, the first complete and accurate compilation of the best results which have been obtained in these new lines of treatment and research. That all of these lines promise much for the future of therapeutics and diagnosis is recognized by every one. Some of us have clear conceptions as to the value of single instances of the employment of serum in combating disease, but most of us have rather hazy ideas as to exactly what has been done in regard to other methods of serum therapy, and why some have succeeded while others have failed. As a matter of fact there are just as good scientific reasons for the failure of some procedures as there are for the success of others. The reader of this book will obtain a clear conception of these important matters, and will be more than ever impressed with the fact that with further research many conditions now considered beyond our aid will be materially benefited. It is well worth while in the hurry and bustle of advancing science to pause now and then and study a volume of this character, which sifts the "tares from the wheat" and presents to us in concentrated form that with which we should all be in close touch.

THE THEORY AND PRACTICE OF INFANT FEEDING. With Notes on Development. By Henry Dwight Chapin, A.M., M.D. Second Revised Edition.
New York: William Wood & Co., 1904.

We had much pleasure in reviewing the first edition of this book when it appeared two years ago. The second addition deals with all the work which has been done since that time concerning the chemistry and modification of breast milk and cow's milk, so that at present it is emphatically a complete and representative discussion of this very important subject, embodying at once the scientific side of the subject and its practical side as well. To the general practitioner the chapters devoted to the "Development of the Infant" will prove quite as interesting as, if not more so than, those which are devoted to its feeding. We can cordially commend this volume as being accurate and practical and useful to physicians who have to take care of the nutrition of infants.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY FOR STUDENTS OF MEDICINE AND PHYSICIANS. By Charles E. Simon, M.D. Second Edition, Revised and Enlarged.
Philadelphia and New York: Lea Brothers & Co., 1904.

To many of our readers Dr. Simon is well known because of his excellent Clinical Diagnosis by Microscopical and Chemical Methods, the fifth edition of which we have recently noticed in these pages. The present volume deals, as its name implies, with the chemistry of the urine, and of the various foodstuffs, the

ferments, and digestive liquids, and with the result of the action of bacteria in the intestinal tract. There are also chapters upon the blood, the lymph, muscle and nerve tissue, the skin and its appendages; the organs of special sense and the ductless glands. Dr. Simon has endeavored to make his book a useful one to the practitioner rather than to the laboratory investigator, and it deserves the support which the first edition received.

TOXICOLOGY. A Manual for Students and Practitioners. By Edwin Welles Dwight, M.D. Philadelphia and New York: Lea Brothers & Co., 1904.

This small volume belongs to the so-called Medical Epitome Series published by Lea Brothers & Co., and edited by Victor Cox Pedersen, of New York. It is essentially a quiz-compend on the subject of which it treats. Instead of the questions on the various chapters being placed in the body of the text, such questions are placed at the close of each chapter, the idea being that thereby the student may give himself a review quiz on each part of the subject as he advances. As a brief summary of toxicology with special regard to vegetable and mineral poisons we can commend this small volume.

A HANDBOOK OF THE ANATOMY AND DISEASES OF THE EYE AND EAR. By D. B. St. John Roosa, M.D., LL.D., and A. Edward Davis, A.M., M.D.
Philadelphia: The F. A. Davis Co., 1904.

The title of this book somewhat conflicts with the scope described for it in the preface; for in the preface we are informed that although it is small in size, the authors believe that in the present state of ophthalmology and otology it is possible to make an exact and reliable guide as to principles of treatment in diseases of the eye and ear, even if they are in an abbreviated form. The anatomical and physiological facts in regard to the eye take up the first thirty-six pages. Following this there is a chapter upon the examination of the eye which not only includes the methods of examination, but methods of treatment, such as the therapeutics of the eye, protective bandages, local bloodletting, and the various drugs which are employed by ophthalmic surgeons. Why these facts should be put in the chapter devoted to the examination of the eye is not clear. Further than this, in this same chapter, whatever the authors have to say in regard to the operative procedures is also considered. The third chapter deals with diseases and injuries of the eye, and the fourth with anomalies of refraction and accommodation. The last 100 pages of the book are devoted to the anatomy and physiology of the ear; the examination and diagnosis of aural disease; the methods of treating diseases of the ear and diseases of the ear itself. As the book is a duodecimo of less than three hundred pages, it is manifest that it is the quintessence of concentration, and we fail to see the exact reason for its existence, since it is hardly a quiz-compend on the one hand, nor an adequate presentation of the subject on the other.

DISEASES OF THE NOSE, THROAT, AND EAR, AND THEIR ACCESSORY CAVITIES. By Seth Scott Bishop, M.D., D.C.L., LL.D. Third Edition, Thoroughly Revised and Enlarged. Copiously Illustrated. Price $4.00.
Philadelphia: The F. A. Davis Co., 1904.

It is not very long since we had the pleasure of referring in terms of praise to the second edition of Dr. Bishop's excellent book upon this subject. The present edition differs from its predecessor in being more complete, and in having additional illustrations. To the general practitioner who wishes a concise and accurate description as to diagnosis and treatment of diseases of the upper respiratory tracts, this book can be strongly recommended.

A SHORT TREATISE ON ANTITYPHOID INOCULATION. By A. E. Wright, M.D. Archibald Constable & Co., Westminster, 1904. American Agents, W. T. Keener & Co., Chicago.

This small brochure upon this very interesting subject consists almost entirely of a series of three papers on antityphoid inoculation recently contributed to the *London Practitioner*. The status of this method of preventing disease is still *sub judice*. In many respects it promises a great deal, and no one is better qualified to write concerning it than Dr. Wright, who has done so much toward advancing its claims as a prophylactic. In Chapter I he deals with the general principles of immunization; in Chapter II with the application of these principles

to the problem of the production of immunity in typhoid fever; in Chapter III with the clinical symptoms produced by inoculation; in Chapter IV with the practical results achieved, as discussed in statistical records. The volume closes with an appendix which contains a list of the author's papers dealing with immunization against bacterial diseases.

A TEXT-BOOK OF ALKALOIDAL THERAPEUTICS. By W. F. Waugh, M.D., and W. C. Abbott, M.D., with the collaboration of E. M. Epstein, M.D. Chicago: The Clinicial Publishing Co., 1904.

The authors of this book are strong advocates of the employment of alkaloids and active principles in preference to galenical preparations. In some respects we think that their enthusiasm carries them too far, for there are certain drugs from which we cannot obtain the full therapeutic value by employing one active principle. On the other hand, their advocacy of the smallest possible dose to accomplish a purpose, that dose being administered in an agreeable form, is certainly worthy of consideration. The book is essentially a compilation, the authors quoting from well known writers persistently and constantly. In its pages we can obtain information concerning preparations, many of which are rarely used by some physicians, and about which it may be difficult to obtain information in other works of reference. Some of these substances are described in eclectic medical literature, and some are well recognized in standard medical works. In order to make the volume particularly useful to the general practitioner it is interleaved with blank pages, upon which the physician can write his own therapeutic notes, thereby adding his personal experience to the records presented in the type. We have no doubt that many practitioners will find this book very useful.

THE PHYSIOLOGICAL FEEDING OF INFANTS. By Eric Pritchard, M.A., M.D., F.R.C.P. Second Edition. Chicago: W. T. Keener & Co.

This little volume upon infant feeding was first prepared by the author for the purpose of presenting an accurate percentage feeding which he had found useful in his own practice. He states that this method was founded on the American system of percentage feeding, but was adapted to English nursing. The cordial reception which the book has had in England has caused him to prepare a second edition. The book is by no means as exhaustive as that of Dr. Chapin, which we have noticed in these pages, but it seems to be an excellent guide to the subject of which it treats. One advantage is that the reader can speedily obtain Dr. Pritchard's ideas, and easily follow them, thereby testing the conclusions which he has reached by his own personal experience.

A HANDBOOK OF PHYSIOLOGY. By W. D. Halliburton, M.D., F.R.S. Nineteenth Edition. Copiously Illustrated. Price $3.00. Philadelphia: P. Blakiston's Son & Co., 1904.

We have recently noticed in the columns of the THERAPEUTIC GAZETTE a new edition of this book, sometimes called "Kirke's Handbook of Physiology," that issue having been published by William Wood & Company, of New York, and revised by an American writer. The present edition is well called "Halliburton's Physiology," and of the two is to be considered the more authoritative because of the fact that Dr. Halliburton is one of the leading physiologists of the world to-day, and has carefully prepared it for the press. This edition is particularly valuable because the sections on the nervous system have been amplified and largely rewritten. New sections have been added dealing with the degeneration of the nerves, the comparative physiology of the brain, and with sleep. The chapters on circulation of the blood have been, to a certain extent, rearranged, and new matter added with special reference to the bearing of physical investigations upon the physiology of blood-pressure. The matter heretofore published in the form of an appendix has been incorporated in the proper places in the main text. Thirty new illustrations have been added.

We understand that the reason for the appearance of two copies of this work at the same time under the direction of different publishers lies in the fact that some question has arisen as to who owns the American copyright. It is not our function to deal with this delicate question, but only to determine for our readers which is the best issue of the two, and this can best be expressed by stating that

if the writer of this notice intended to purchase either one of these issues, he would purchase that now under review prepared by Professor Halliburton.

A Compend of Medical Latin. Designed expressly for Elementary Training and Medical Students. By W. T. St. Clair, A.M. Second Revised Edition.
Philadelphia: P. Blakiston's Son & Co., 1904.

The object of the author in publishing this little book is to present to the student of medicine in a plain and practical way the fundamental principles upon which medical language is built. The limited vocabulary of important medical words is presented with special care as to technical endings of the words, and prescriptions are given, both in complete and abbreviated form. This is an exceedingly useful little book for the student who is beginning the study of medicine, and who has been so unfortunate as to have had no early training in Latin. It will undoubtedly become as popular in its line as the other numbers of this Quiz-Compend Series, with which many of the profession are familiar.

The Medical News Visiting List for 1905.
Philadelphia and New York: Lea Brothers & Co., 1904.

This well known and valuable visiting list appears in four forms—a weekly form dated for 30 patients; a monthly; a perpetual; and an undated form for 60 patients per week per year. It appears as a wallet-shaped book, bound in flexible leather, and can easily be carried in the pocket. The price is $1.25.

No physician should practice without employing a visiting list, and this is one of the best, if not the best, which is placed upon the market.

New Methods of Treatment. By Dr. Laumonier. Translated and Edited from the Second Revised French Edition by H. W. Syers, M.A., M.D. Price $2.50.
Chicago: W. T. Keener & Co., 1904.

This book, as its title indicates, deals with the newer methods of treatment. Its first chapter, for example, deals with nutritive alterants, and takes up organic drugs containing phosphorus, such as the lecithins, nucleins, and glycerophosphates. Amongst the indirect alterants are phosphoric acid, cacodylic acid, derivatives of vanadium, persulphates and orexine, and finally the yeasts. The second chapter deals with blood alterants, especially with the use of defibrinated blood, and the employment of blood derivatives and substitutes for iron. There are also chapters upon renal alterants, vasomotor alterants, respiratory alterants, glandular therapy, serotherapy, antipyretics, and antiseptics. The book is not a text-book in any sense; it is rather an essay upon these various new medicinal substances, and, as may be gathered from the table of contents just named, contains much that is of interest and value, and some information which is more valuable from its historical standpoint than for its value in the medicine of to-day. We welcome its appearance because a new book summing up our knowledge in regard to these matters is really needed.

The Medical Record Visiting List and Physician's Diary for 1905.
New York: William Wood & Company.

This is one of the smallest and most compact of the visiting lists which are annually prepared for members of the profession. It is very readily carried in the pocket, and its very flexible binding results in its taking up little room. The early pages are devoted to various matters of interest to the busy practitioner, such as doses of standard preparations, the treatment of poisoning, the use of drugs by hypodermic medication, artificial respiration, and hints on the writing of wills.

The Doctor's Recreation Series. Edited by Charles Wells Moulton. Volume I.
Chicago, Akron, and New York: The Saalfield Publishing Company, 1904.

We are told in the preface of this interesting volume that it is a product of a doctor's leisure hour, and that the book is designed to while away the leisure hours of his fellow practitioners. Handsomely bound and illustrated with excellent full-page photoengravings, it furnishes a useful book for the waiting-room, and a source of infinite amusement to the physician and his family when he can break from the humdrum existence of seeing patients and solace himself with amusing anecdotes. Brief stories, rhymes, and jokes dot every page, and the yarns that bring laughter are alternated with others which deal in pathos. All litera-

ture has been drawn upon for its enrichment, from Samuel Lover's "Handy Andy" to some of Weir-Mitchell's poetry. It is both a book for the doctor and the patient, and we doubt not that it will prove most suitable to those who may be wise enough to purchase it.

Correspondence.

LONDON LETTER.

By George F. Still, M.D., F.R.C.P.

With the beginning of October the medical schools and the medical societies have resumed activity; and as usual each school has had its introductory address, and its introductory annual dinner. Among much that was interesting in the various addresses I must restrict my report to a few "excerpta" which deal with questions of practical interest. At the Charing Cross Hospital the opening address always takes the form of "the Huxley Lecture," for at one time Huxley was a student there, and the memory of a distinguished scientist is honored by the distinguished men who have held this lectureship.

This year the lecture was given by Sir William Macewen on the function of the cæcum and appendix. He made a timely protest against the present-day fashion of quarreling with nature, and imagining that surgery can improve on nature's product by lopping off a bit here and a bit there. Nowadays, he said, the infant must be circumcised, a few years later his tonsils must be removed, then his pharyngeal tonsil, and a few years later he is only satisfied when his appendix is in a glass jar. It is even hinted that the stomach is a useless organ which could be dispensed with, and that the large intestine is merely a reservoir in which feces stagnate, and that man can do perfectly well without it. But without going as far as this there are many who hold that the cæcum and appendix are rudimentary and useless organs, and some surgeons never miss an opportunity of relieving their patients of the normal appendix.

The lecturer said: "One is forced to ask, Is this human body of ours so badly constructed that it contains many useless parts and requires so much tinkering? Possibly I may be out of fashion with the times, as I cannot find such imperfections in the normal human body as are alleged." He went on to say that we have no right to conclude that every part of the human anatomy whose structure and function we do not understand is useless. The cæcum and appendix certainly play an important part in digestion in some of the lower animals, and from observations on man where by accident or operation the cæcum had been laid open it was clear that the appendix pours out secretions which mingle with the food just after it comes through the ileocæcal valve and probably plays an important part in completing the process of digestion. Both in the cæcum and in the appendix there are normally large numbers of microörganisms which assist in digestion by disintegrating compounds which have resisted the action of the gastric and intestinal exudations. The cells and nuclein of the solitary follicles in the appendix probably have a controlling action on these micro-organisms, preventing them from acting injuriously on their host. It is when this function of the appendix is inhibited from any cause that these microörganisms become capable of damaging the walls of the cæcum and appendix; and the relation between cæcum and appendix is so close that any disturbance in the former is likely to affect also the functions of the latter.

Probably the commonest cause of disturbance of the functions of the cæcum is indigestion, which may occur chiefly in the cæcum itself, "cæcal indigestion," or may be secondary to indigestion in the upper parts of the alimentary tract. The cæcum aids digestion, but the food which it deals with must contain the proper amount of secretion from other glands and have reached a certain stage of digestion already; the cæcum can compensate somewhat for faults in the stomach and small intestine, but only to a limited degree. The standing lunch, eaten against time whilst the mind is occupied with business, is one of the surest ways of producing not only indigestion, but ultimately cæcal or appendicular mischief.

An interesting address was given by Sir Charles Bruce, the late Governor of Mauritius, at the opening session at the London School of Tropical Medicine. He described the condition of the various countries in which he had been stationed as regards epidemic and endemic disease; the malaria in Ceylon; yellow fever and malaria in British Guiana; bubonic plague, malaria, and the disease of animals known as "surra," in Mauritius. He referred to the inadequacy of our British Pharmacopœia to meet colonial requirements, and suggested that something might be learnt from the herbalists and empirical usages of less civilized countries, from which our stock of therapeutics might usefully be increased. With regard to plague, experience in Mauritius had shown that Haffkine's fluid confers only a brief temporary immunity, and it is not clear that Yersin's serum is completely curative. Much progress has been made in the discovery of the causes of many tropical diseases, but there still remains the more important part, the discovery of a remedial agent.

Dr. P. H. Pye-Smith, delivering the inaugural address at the University of Birmingham, pleaded for liberal education—the study of things which in themselves may not bring any immediate profit: for instance, the study of botany and of the laws of mechanics, the study of art also and of ancient literature. It is refreshing in these days when medicine seems too busy with its own to take notice of the classics and the humanities in general, to hear such addresses as that of Dr. Pye-Smith, and the recent inaugural address by Professor Brooks at University College, Bristol, who advocated the claims of the classics as one of the most valuable forms of mental training.

The Obstetrical Society of London began its session with a very interesting discussion on Cæsarian section. Dr. Munro Kerr reported a series of thirty cases with two deaths, a maternal mortality of 6.6 per cent. The one death was from septic peritonitis, the other from hemorrhage and collapse. He said there are three methods of treating the uterus after removing the child: (1) removal of the uterus by supravaginal hysterectomy; (2) retention of the uterus and sterilization by section of the tubes; (3) retention of the uterus without sterilization—the conservative method. The last method he thought was the best in many cases, and of the two other methods he favored supravaginal hysterectomy. Dr. Herman said that Cæsarian section is the simplest and easiest of all abdominal operations, and should have no mortality at all if done early; but if it is deferred until the patient is already exhausted by protracted labor it is not so safe an operation. As to the question of sterilization, this must be decided by the patient herself, and if undertaken it should be done by removing the uterus. Dr. W. S. A. Griffith also considered that with a competent operator Cæsarian section done for contracted pelvis should have no mortality; he has never lost a case. His method of sterilization is ligature of the tubes with a piece of fine silk. Dr. Amand South drew attention to the risks of the conservative method, namely, hemorrhage and sepsis in the primary operation, rupture of the uterine scar during the next pregnancy, the increased mortality in repeated Cæsarian section—eight per cent in some statistics—and the possibility of less favorable circumstances when the operation next became necessary. He considered that these risks should be put plainly before those interested and the decision must rest with them. If sterilization is desired, he thinks that removal of the ovaries is not the best method, for it has been shown that they provide an internal secretion of some value. Resection of the tubes sometimes fails in its object. Hysterectomy seems advisable on several grounds; it is less dangerous, it is easier, and also more certain in its effect.

After so many eminent obstetricians had unhesitatingly laid the burden of decision for or against sterilization on the patient, it was interesting to find that Dr. H. R. Spencer and Dr. Cullingworth both held the opposite view very strongly. Dr. Spencer said the question of sterilization should rest entirely with the doctor; it is his duty to deliver the woman and restore her as far as possible to a natural condition. If she becomes pregnant again the operation can be repeated, and experience shows that the repeated operation entails no great risk; it is cer-

tainly not the business of a doctor to advise the use of preventives. Dr. Cullingworth stated some of the reasons why sterilization might be inadvisable even though the woman might consent to it: If her one child died she might regret bitterly having consented to sterilization; if her husband died, her chances of second marriage might be destroyed altogether by her inability to bear a child. The risk from a second or third Cæsarian section is little if any greater than in the first operation.

At the Pathological Society of London Mr. C. S. Wallace discussed the value of castration and vasectomy in the treatment of enlarged prostate. It had been stated, for instance by Mr. Reginald Harrison, that double vasectomy causes shrinkage of the prostate, but Mr. Wallace has performed this operation on dogs without producing the slightest effect on the size of the prostate; and although evidence is somewhat conflicting, the probability seems to be that it is equally ineffectual in man. In adult animals castration of the normal testes produced atrophy of the prostate, and it was said that unilateral shrinkage of the prostate could be produced by unilateral castration. The effects, however, were very variable; after double castration in cats the prostate showed no atrophy six months after the operation. In human beings the results were equally variable. Removal of diseased testicles certainly does not always cause the prostate to shrink, and even when normal testicles are removed the condition of the prostate sometimes remains unchanged. Undoubtedly in some cases the effect has been very striking, as in one recorded by Mansel Moullin, where rapid and great shrinkage of the prostate followed castration; but it seems probable that in some of the cases in which improvement has followed this treatment the good result is due to the prolonged rest in bed which was necessitated by the operation. Summing up, Mr. Wallace said that single or double vasectomy is useless in the treatment of enlarged prostate, and that castration, single or double, is so variable in its effect that it cannot be relied upon.

At the opening meeting of the Medical Society of London some interesting remarks were made on the value of Roentgen rays in the diagnosis of renal calculus. Mr. Mayo Robson said that if the stone contains calcium salts, as in the oxalate calculi, it can usually be detected, but that the uric acid calculi cannot be seen unless they are of very large size. Other speakers referred to the disappointing results of the Roentgen rays, and probably the experience of many will confirm them in their doubt of the value of this means of diagnosis for renal calculus. Certainly a negative result must be disregarded if the clinical symptoms point strongly to stone; it is only when a positive result is obtained that the method becomes of value, and even then it must be remembered that there are fallacies from shadows thrown by other things, perhaps by things outside the body altogether, as the president, Mr. John Langton, pointed out.

One of the most remarkable events of the month has been the visit of a large body of French physicians and surgeons to London, including such well-known names as M. Lucas Championnière, Triboulet, and Huchard. They were entertained and banqueted daily during their four days' stay, and visited almost every place in London of medical renown. If they learnt nothing else, they must at least carry away with them, as one speaker said, the conviction that the English *"corps médical"* entertains nothing but warm sympathy for their fellows across the channel. The King sent a message expressing his pleasure at their visit, and if one may judge from the kindly feelings expressed by our French visitors, this meeting is likely to promote the brotherhood of science between the two nations to no small degree.

There is one other event which I must mention, as one of the unexpected happenings of the month—the appointment of Sir Isambard Owen as Principal of the Armstrong College in the University of Durham. Sir Isambard had been so long connected with St. George's Hospital and its medical school, as physician to the former and dean to the latter, and had taken such an active part in medical educational matters in London, that his departure from the metropolis comes as a surprise, but no one can doubt that he will make an ideal Principal, and Durham University is fortunate to have secured so great an acquisition to its strength.

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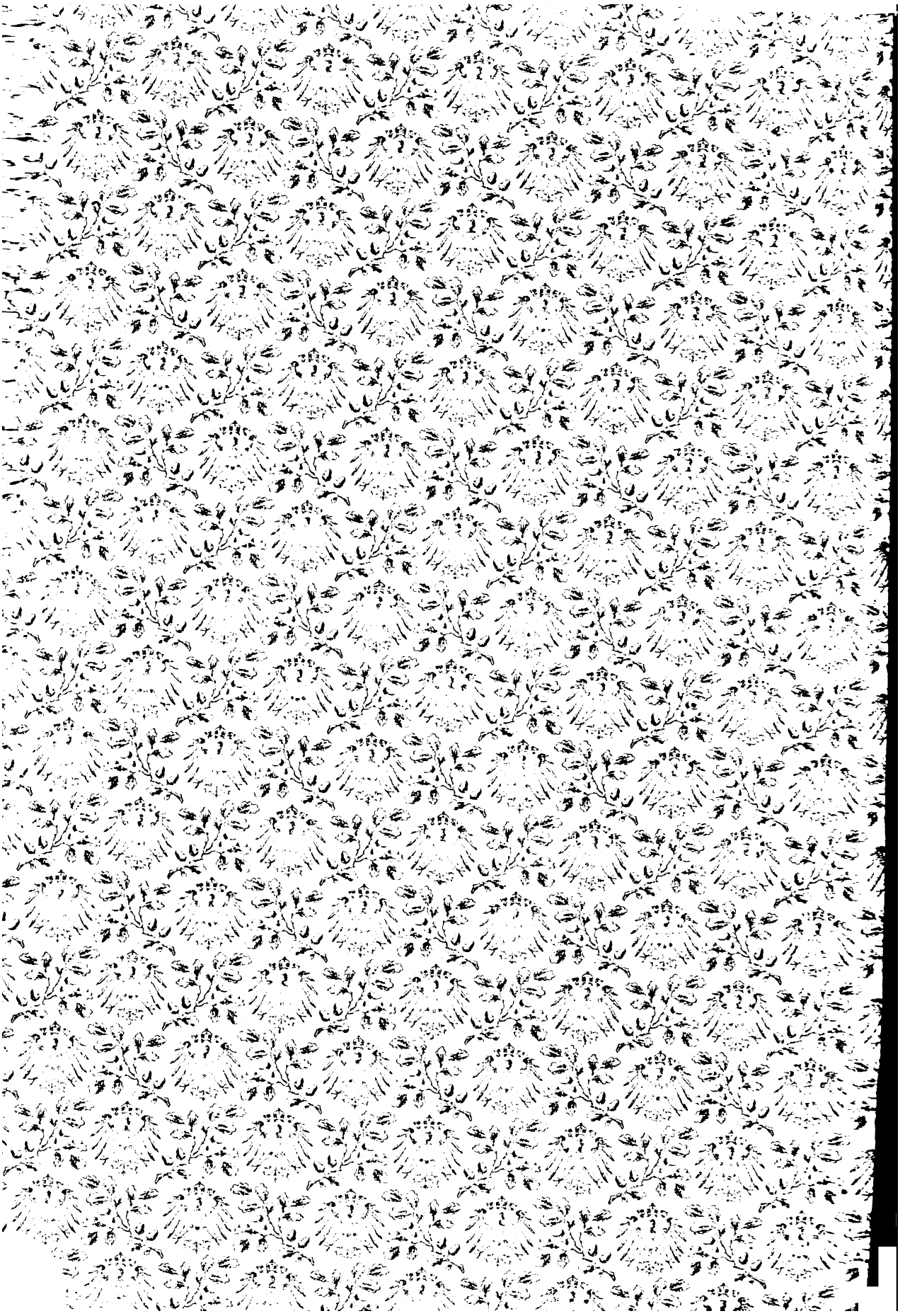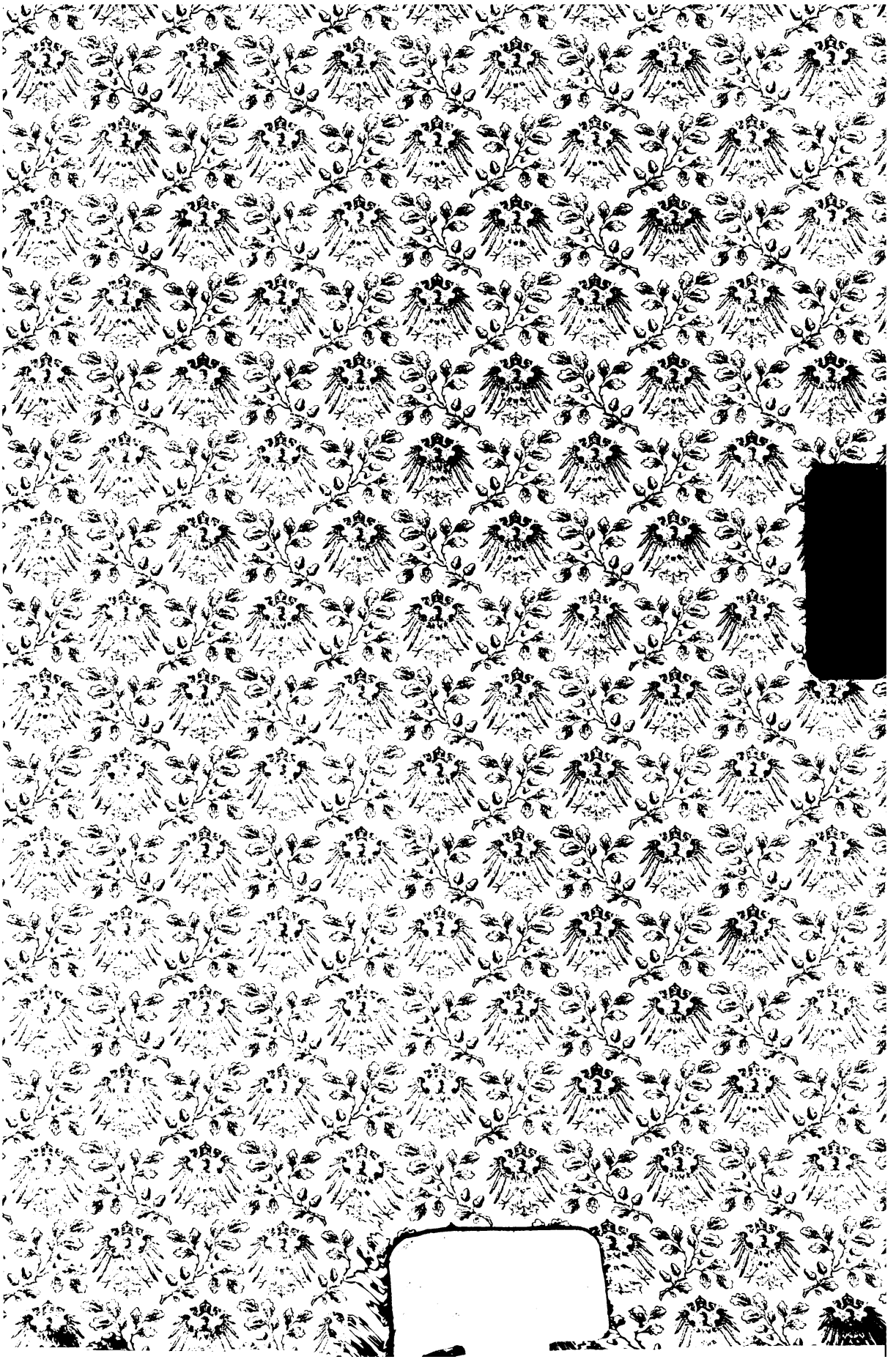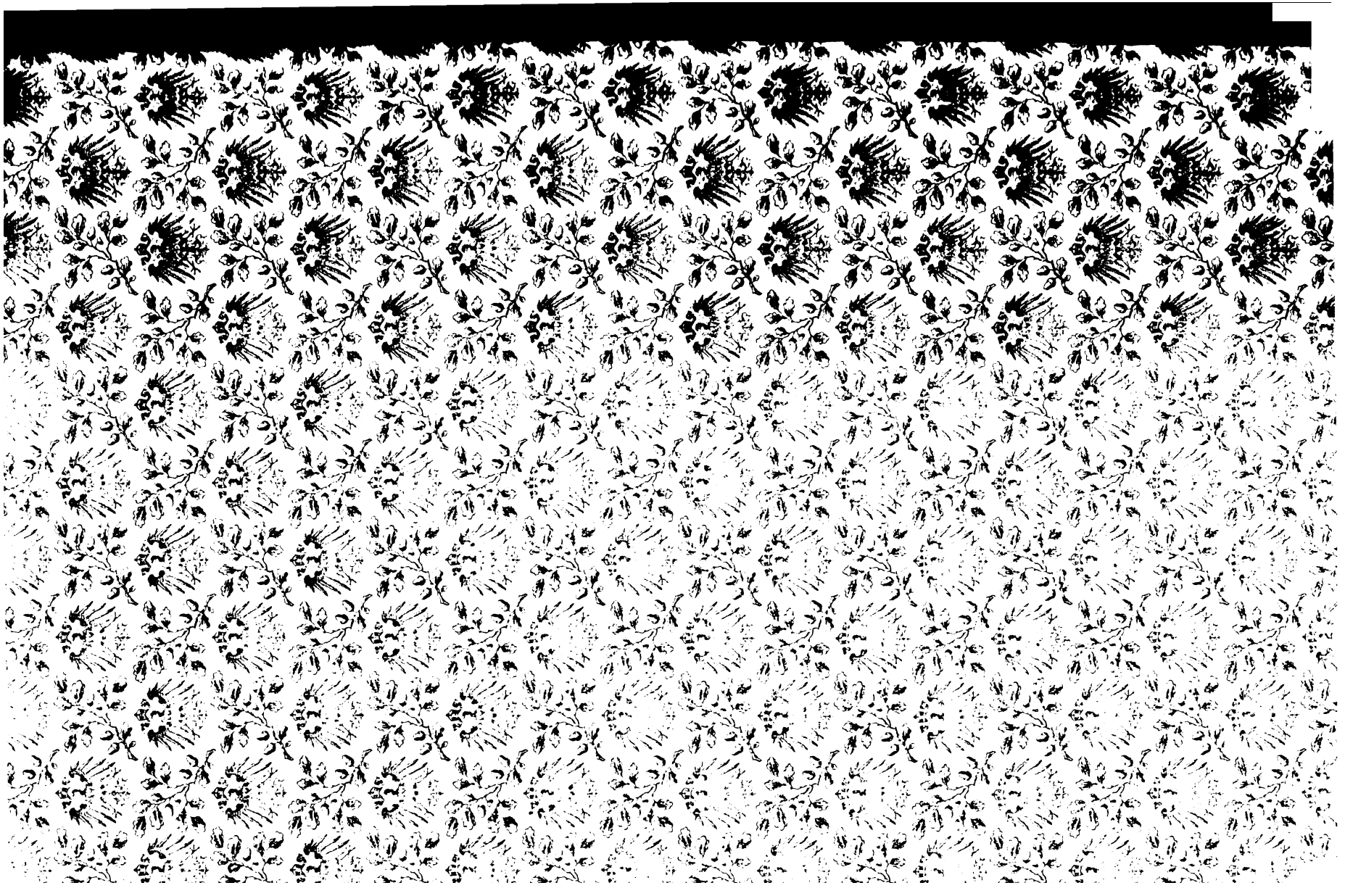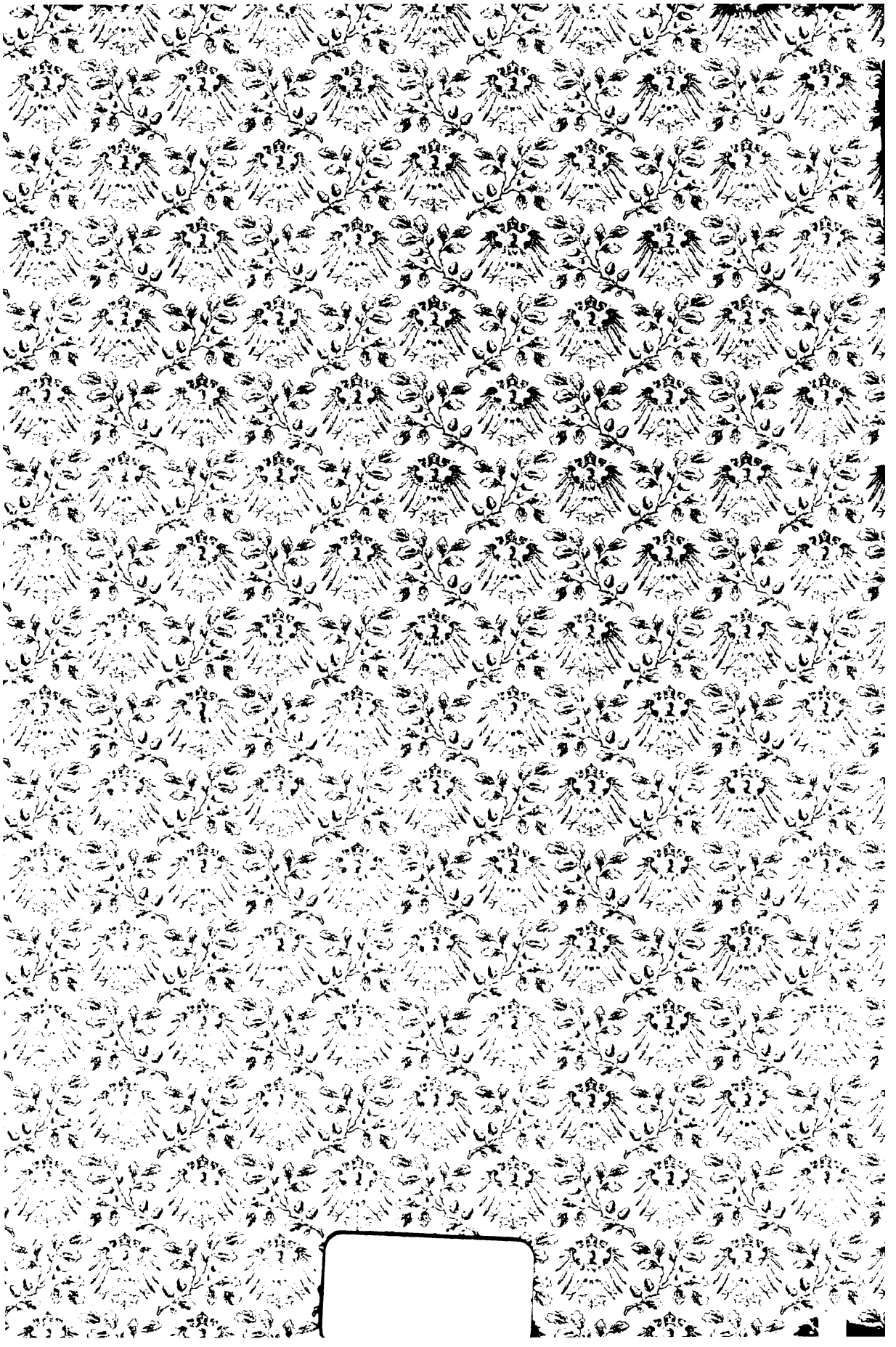
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